**MISSISSIPPI**

**Criminal History System**

# *Mississippi Criminal History System (MCHS) Project*

**Data Entry Subsystem**

**Interface Control Document**

**Version 4.0**

November 28, 1998

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# *1.0 SCOPE*

## 1.1    Identification

This document provides the basis for the development of software to interface with the Mississippi Criminal History System (MCHS) through any of four data input and query mechanisms:

- Transmission from directly connected workstations,

- Transmission from terminal servers,

- Card Scan devices, and

- Live Scan devices.

These interfaces are used for data of two basic types: law enforcement messages and fingerprint transmissions.  The first two interfaces above deal with law enforcement messages.  The last two interface types relate to fingerprints.

## 1.2    Document Overview

The remainder of this document provides requirements for interfacing client devices and systems with the MCHS Switch and criminal history repository source document processing components.  Section 1.4 provides a brief overview of the MCHS architecture.  Section 2 lists reference documents supporting the ICD.  Section 3 provides interface requirements for each of the data input and query mechanisms.  Each interface type is subdivided into basic transport protocol requirements, security requirements, and message structure requirements. Appendix A contains supporting information for fingerprint transmissions.

## 1.3    System Overview

The Mississippi Criminal History System (MCHS) is an information processing system based on a criminal history database which includes textual and mug shot information and a fingerprint identification capability.  The textual criminal history data is stored in a relational database called the Repository managed by the Oracle database management system (DBMS).  Fingerprints are stored and managed by the NEC Automated Fingerprint Identification System (AFIS).  Data from hard-copy source documents is entered into MCHS through fingerprint card scanning data entry workstations.   Fingerprint data, mug shots and supporting data are also entered through live scan data entry workstations.  Live scan and card scan workstations communicate with the Repository over the State's Frame Relay network.

In addition, MCHS is updated daily with selected inmate status information transmitted electronically from the Department of Corrections.  MCHS supports standard NLETS Criminal History Record Information queries from out-of-state agencies, and provides additional query capabilities to in-state users.  MCHS also participates in the FBI Interstate Identification Index

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(III).  MCHS provides a central repository for fingerprint-validated records of criminal or suspect persons known to the State of Mississippi.

The criminal justice process begins with an arrest, at which time fingerprints are taken. Those fingerprints and accompanying demographic information and information concerning the arrest are be forwarded to the Criminal Information Center (CIC).  The forwarding is electronic from Live Scan devices and Card Scan devices, or manual through the US Mail. The fingerprints are used to establish positive identification, linking the arrest to previous criminal history of the arrest subject.  An Arrest Tracking Number (ATN) on the fingerprint card establishes the linkage which connects the arrest data with data from subsequent events in the criminal justice cycle.

The prosecutor decides whether to file charges resulting from the arrest.  Next, the prosecutor will be asked to report filings and will be required to report declinations to the MCHS, providing the ATN with the decision data. The assignment of an arrest case to a prosecution agency depends on locality and severity of the offense charged.

The court receives the filed charges and disposes of them, typically by dismissal, acquittal or conviction.  The court reports the disposition including the ATN through the Administrative Office of the Courts (AOC) who then reports the data to the MCHS.

The DOC receives sentenced felony prisoners and reports reception of prisoners to the MCHS along with fingerprint images, but without an ATN.  The MCHS establishes a one-to-one correspondence between the DOC number and the SID number by fingerprint comparison.  The DOC also records and reports major status changes to the MCHS for every person under its control or supervision.  These reports contain a unique DOC number.

Criminal justice agencies throughout the State may request criminal history information from the MCHS for any lawful purpose.  The inquiries may contain fingerprint images, in which case the response is based on positive identification, or may not contain such images, in which case the responses are based on the information provided in the inquiry and be of a lesser degree of certainty.

Other State agencies and citizens and certain out-of-state agencies may also make inquiries of the MCHS to the extent provided by the legislature.  Fees may or may not be charged for such queries, as the legislation provides.  Inquiries may require or not require fingerprints as provided by the legislation.

State fingerprint experts will search crime scene fingerprints against the file in order to link MCHS subjects to such crime scenes.

The MCHS is subdivided into seven separate subsystems that are related to one another.   The definition of each subsystem is provided as an overview to provide a foundation for the reader so that they may better understand the work flows that are used to define the conceptual use of MCHS.  The overall computer systems are shown in Exhibit 1-1.

**AFIS.**  The NEC AFIS21 is designed for efficient and accurate tenprint processing.  This subsystem is designed for a paperless environment as the majority of the search requests are

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received from MCHS in the form of electronic data.  The subsystem stores both tenprint and latent fingerprint records in a series of databases built to enhance electronic searches.

**Data Entry.**  The Data Entry subsystem allows users to enter data from any authorized workstation within the MCHS.  The purpose of this subsystem is to facilitate the entry and maintenance of the data from all end users and to allow retrieval of information by authorized users.  Data may take the form of text messages, queries, fingerprint images, mug shots, or other source document images.
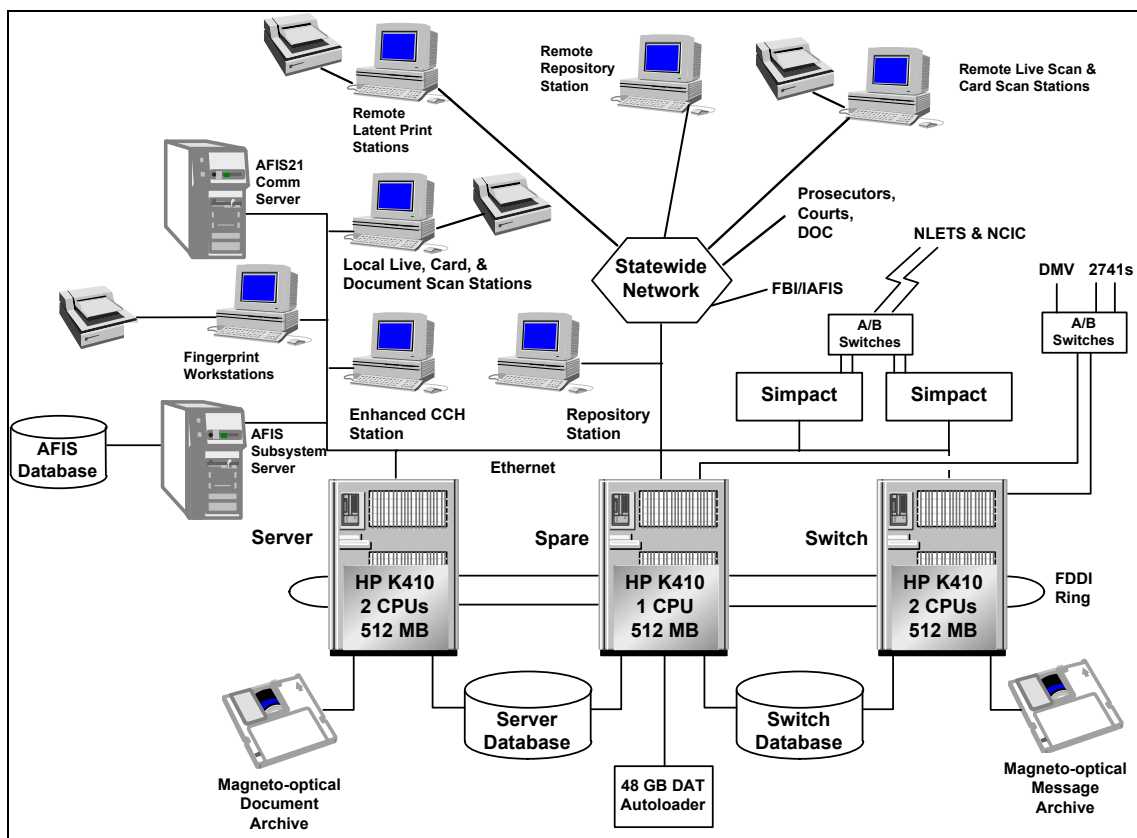


*Exhibit 1-1.  Overall MCHS System.*

**MCHS Switch.**  The MCHS Switch subsystem is a routing and delivery agent for law enforcement messages generated on Datamaxx (or similar) workstations and serviced by software in the Repository and Mug Shot subsystems.  It also provides the service of message routing for non-MCHS users.  This service consists of routing messages and responses between users on Datamaxx workstations or legacy terminals and information sources external to MCHS including DMV, NCIC, and NLETS.  Fingerprint information is not carried by the MCHS Switch.

**Controller.**  The Controller subsystem manages the document work flow.  Upon receipt of an incoming source document, the Controller identifies the document type, validates its contents, logs its receipt, determines what processing is required, and passes it to the first processing objective.  The work is either processed immediately or placed in a work queue depending on human and machine resource availability.  The controller manages work flow queues, moving

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work through the MCHS work flow based upon criteria established by MCHS management.

**Repository.**  The Repository subsystem provides for the receipt, storage, and retrieval of criminal history records.  The information is returned in presentation (paper) and transmission (electronic) formats.  It also supports ad hoc querying and reporting.

**Mug Shot.**  The Mug Shot subsystem provides for the receipt, storage, and retrieval of mug shot images associated with a person's criminal history record.

**Archive.**  The Archive subsystem stores all source documents and Document-in-Process (DIP) records.  It stores image and textual data (electronic versions of source documents and DIP records), collects statistical operations data, and provides tools to generate ad hoc and fixed-period reports.

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# 2.0 REFERENCED DOCUMENTS

## 2.1    State Documents

The following document contains requirements for the MCHS system and is referenced in Appendix A.

1. Request for Proposals, Number 2776, for Implementation of the Mississippi Criminal History System, Department of Information Technology Services, State of Mississippi, 1996.  This document is referred to as "RFP 2776" throughout the ICD.

## 2.2    Other Government Documents

The following Federal Government documents are required:

1. Integrated Automated Fingerprint Identification System (IAFIS) Interface Control Document.

2. Electronic Fingerprint Transmission Specification (EFTS), US Department of Justice (DOJ), Federal Bureau of Investigation (FBI), Criminal Justice Information Services (CJIS) Division, August 1995.

3. Data Format for the Interchange of Fingerprint Information, American National Standards Institute/National Institute of Standards and Technology (ANSI/NIST), ANSI/NIST CSL-1-1993.

4. Data Format for the Interchange of Fingerprint, Facial & SMT Information, ANSI/NIST-ITL 1a-1997, addendum to ANSI/NIST CSL-1-1993.

5. Interstate Identification Index (III) Operational and Technical Manual, US Department of Justice (DOJ), Federal Bureau of Investigation (FBI), Identification Division.

6. Criminal Justice Information Services (CJIS) Wide Area Network Interface Specification, 1997.

7. National Crime Information Center (NCIC) 2000 Message Book.

8. National Crime Information Center (NCIC) Operating Manual.

## 2.3    Other Documents

The following two documents are required to develop the two NCIC/NLETS interfaces.

1. National Law Enforcement Telecommunications System Users Guide.

2. Message Header Processing in the Law Enforcement Environment using the Datamaxx Message Processing Protocol™  (DMPP-2020), A white paper Revision 3, July 1997, Datamaxx Applied Technologies, Inc. 3780 Peddie Drive Tallahassee, Florida, 32303 (904) 575-1023.

3. Request For Comment (RFC) 1521, MIME (Multipurpose Internet Mail Extensions),

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# *3.0 INTERFACE REQUIREMENTS*

The section provides the technical interface requirements for the four MCHS interfaces.

## 3.1 Messages Transmitted from Directly Connected Client Workstations

### 3.1.1 Basic Transport Protocol

Connection to the MCHS Switch from workstations must use TCP/IP socket streams. The MCHS Switch shall act as the server, the workstation as the client. Specific port numbers and IP addresses are assigned at implementation by the Network Administrator.

All messages are framed with the NCIC-2000 message wrapper. The DMPP-2020 document provides an example of one implementation of the NCIC-2000 message header.

The framing used is as follows:

*STRP*  a four character ASCII start pattern (ff 00 aa 55) indicating the start of a message.

*cccc*  a 32-bit binary count including the lengths of the start and end patterns and the length of cccc (4), transmitted in network order. (The value should be the length of the message plus 12).

> Example*: Hex bytes (00, 00, 00, 66) for a binary length of 102 (counting returns and line feeds.*

*The message itself.*  NCIC-2000 escape sequences for embedded binary images are possible. These are prefixed by the tag IMG/ and followed by a binary byte count, then the image data.

*ENDP*  a four character ASCII end pattern (55 aa 00 ff) indicating the end of a message.

### 3.1.2 Connecting Client Workstations

### 3.1.2.1 CIC Responsibilities

The CIC is responsible for assigning a client workstation record in the database and adding an object mailbox to the line. The information includes:

- Client workstation name

- Client workstation IP address

- Client workstation security profile

The CIC is also responsible for providing the IP address and port number of the MCHS Switch as well as the IP address of the client workstation to the vendor.

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### 3.1.2.2 Vendor Responsibilities

The vendor is responsible for using the IP addresses and client workstation name provided by the CIC. Client workstations must provide NCIC and NLETS messages in the proper format as described in the appropriate manuals.

### 3.1.3 Security

### 3.1.3.1 CIC Responsibilities

Workstation and user permissions are assigned and entered into MCHS by the MCHS System Administrator. This activity must be coordinated and accomplished prior to first use of MCHS by either a new user or a new workstation. A description of this activity is beyond the scope of this document.

### 3.1.3.2 Client Responsibilities

The client is responsible for signing on to the MCHS Switch prior to any other message activity. During this sign, on assignment of security keys is made. This is derived from the set of tasks permitted the individual user and those tasks allowed from the specified client workstation. The combination of client and client workstation permissions must be satisfied before any task can be performed. The MCHS Switch supports only one sign-on session per client. If a client signs-on at a second workstation while a session is active at the first, the MCHS Switch will automatically sign the client off from the first client workstation prior to completion of sign-on at the second client workstation.

Clients must sign off when all tasks have been completed. It is not sufficient to power-off the PC, the sign-off screen must be invoked.

During the period the user is signed on, all messages that are logged are tagged with the users ID. These messages will be stored indefinitely at the Criminal Information Center. The format of the sign on and sign off messages are described below:

**Sign On Message**

The Sign On Message allows authorized users to access the MCHS Switch. The Sign On Message consists of four mandatory fields plus the message identifier all delimited by a single slash "/". The fields are positional within the message. The fields are defined in the table below:

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| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DOPS | Must always be present as DOPS. |
| Agency | 5 max | Alphanumeric | MCH | Only value allowed |
| Operator ID | 8 | Alphanumeric | Valid operator ID | |
| Password | 6-8 | Alphanumeric | Valid password | |
| Workstation | 5 | alphanumeric | Valid workstation | |
| ORI | 9 | Alphanumeric | Valid ORI | |

An example of a Sign On Message is:   DOPS/mch/operid/passwd/TUPE1/MSMHP0000

**Sign Off Message**

The Sign Off Message notifies the MCHS Switch that the user session is terminated.  It consists of a single mandatory field consisting of the message identifier.  No other data is required.  The Sign Off Message must be the last message sent to the MCHS Switch when terminating a session.  The message format is below.

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | alphanumeric | OPX | Must always be present as OPX. |

An example of a Sign Off Message is:  OPX

### 3.1.4   Message Structure

All messages sent to MCHS Switch from client workstations receive an acknowledgment. This one line string contains the name of the workstation repeated twice followed by the date and time and the number of the message received from the workstation that day.  The acknowledgment message format is below.

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**Acknowledgment Message**

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Workstation Name | 5 | Alphanumeric | Valid Workstation Name | Sending workstation name |
| Blank | 1 | Alphanumeric | Blank | |
| Workstation Name | 5 | alphanumeric | Valid Workstation Name | Repetition of first field |
| Blank | 1 | Alphanumeric | Blank | |
| Message Number | 4 | Numeric | Whole Number | Number of the message sent from the workstation. It is reset at midnight. |
| Blank | 1 | Alphanumeric | Blank | |
| Time | 8 | hh:mm:ss | Valid hour, minute, and second | Time MCHS Switch received the message |
| Blank | 1 | Alphanumeric | Blank | |
| Date | 8 | mm/dd/yy | Valid month, day, year | Date MCHS Switch received the message |
| Message End | 1 | Newline Character | Newline character | |

An example of an Acknowledge Message is: 21120 21120 0004 12:00:00 01/02/98

This example indicates that workstation 21120 sent MCHS Switch a message at 12:00 on January 2, 1998 and it acknowledges the fourth message sent that day.

In addition, all unsolicited messages received at a workstation have three parts described below.

- Source Information. A one line string about the source giving the name, date and time, and the inbound message number of the message.

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- Message. Complete text of the message/response.
- Destination Information. A one line string about the destination giving the name, date and time, and the outbound message number of this message.

The formats of these messages are below.

**Source Information Portion**

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Workstation Name | 5 | Alphanumeric | Valid Workstation Name | Responding workstation |
| Blank | 1 | Alphanumeric | Blank | |
| Message Number | 4 | Numeric | Whole Number | Number of message received from the sender. |
| Blank | 1 | Alphanumeric | Blank | |
| Time | 8 | hh:mm:ss | Valid hour, minute, and second | Time MCHS Switch received the message |
| Blank | 1 | Alphanumeric | Blank | |
| Date | 8 | mm/dd/yy | Valid month, day, year | Date MCHS Switch received the message |
| Message End | 1 | Newline Character | Newline character | |

An example of the Source Information portion is: NCIC 1203 12:00:03 01/02/98

This example indicates that NCIC is sent a response at three seconds past noon on January 2, 1998 and it is the 1,203 response from NCIC.

**Message Portion**

The format of the message depends on the sender.

**Destination Portion**

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Workstation Name | 5 | alphanumeric | Valid Workstation Name | Receiving workstation name |
| Blank | 1 | Alphanumeric | Blank | |
| Message Number | 4 | Numeric | Whole Number | Number of message sent to the workstation. It is reset at midnight. |
| Blank | 1 | Alphanumeric | Blank | |
| Time | 8 | hh:mm:ss | Valid hour, minute, and second | Time MCHS Switch created the message |
| Blank | 1 | Alphanumeric | Blank | |
| Date | 8 | mm/dd/yy | Valid month, day, year | Date MCHS Switch created the message |
| Message End | 1 | Newline character | Newline character | |

An example of the Destination portion is:   21120 0005 12:01:00 01/02/98

This example indicates the response/message above was received by workstation 21120 at one minute past midnight on January 2, 1998 and it was the fifth message received.

Messages bound for NCIC follow the formats described in the NCIC manuals beginning with the Message Key (MKE).  The MCHS Switch places additional header information on all NCIC messages but this is not the responsibility of the transmitting terminal.

Messages bound for NLETS follow the formats described in the NLETS manual. There is no special NLETS header.

Messages bound for the workstations from the MCHS Switch subsystem are treated as unformatted text. There is no special processing for any message received regardless of its source: NLETS, NCIC, MCHS.

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There are seven MCHS specific messages which the MCHS Switch processes. Workstations integrating with MCHS must support these messages. They are described below:

**Change Password**

The Change Password Message directs the MCHS Switch to change a users password. The Change Password Message consists of three mandatory fields plus the message identifier all delimited by a single slash "/". The fields are positional within the message. The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
|-------|--------|--------|-------|-------|
| Identifier | 4 | alphanumeric | DPWD | Must always be present as DPWD. |
| New Password | 6-8 | alphanumeric | | |
| Old Password | 6-8 | alphanumeric | | Must be a valid password. |
| Confirmation | 6-8 | alphanumeric | | Must be identical to the New Password field. |

An example of a Change Password Message is: DPWD/0abcde/psswrd0/0abcde

**Local Administrative Message**

The Local Administrative Message is used to send free-text messages to up to five terminal destinations within the MCHS user community. The Local Administrative Message consists of a combination of mandatory fields. The fields are positional. An exception is the Terminal Destination which can occur from one to five times. The fields are defined in the table below:

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| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DMSG | Must always be present as DMSG. It is delimited by a single slash "/". |
| Network Source | 4 (may expand to 5) | Alphanumeric | MCHS | Currently there is only one network supported, MCHS. This value is followed by a single comma ",". |
| Workstation Source | 5 | Alphanumeric | | Must be the five-character workstation id. It is delimited by a single comma ",". |
| Network Destination | 4 (may expand to 5) | Alphanumeric | | Currently there is only one network supported, MCHS. This value is followed by a single comma ",". |
| Terminal Destinations | 5 or 9 | Alphanumeric | | One to five terminal ids or ORIs which will receive the message. They are delimited by a single comma ",", and ended by a single period ".". |
| Message Text | Up to 15,000 | Alphanumeric | | Free text |

An example of a Local Administrative Message is: DMSG/MCHS,TUPE1,MCHS,BATES1, ORI456789. The Tupelo office will send the requested materials today

**Find Message**

The Find Message is used to search for, and find messages stored by the MCHS Switch in its local data stores. This message will not search archived messages stored on the Level II Journal System. Only the message IDs are returned. Contents of the message must be displayed using

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the Display Messages Message. A user may find messages from/to the user's workstation only.

The Find Message consists of a combination of mandatory and optional fields. Fields are preceded by a three-character tag consisting of two alphanumeric characters followed by a slash "/". The associated data follows. Fields are delimited by a single space " ". The fields are keyword driven, and are optional. The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
| --- | --- | --- | --- | --- |
| Identifier | 4 | Alphanumeric | DAMF | Must always be present as DAMF. It is delimited by a single slash "/". |
| From Date | 11 | DD-MMM-CCYY | | Begins with "FD/"followed by beginning date for search. |
| From Time | 8 | HH:MM:SS | | Begins with "FT/"followed by beginning time for search. |
| To Date | 11 | DD-MMM-CCYY | | Begins with "TD/"followed by the search stop date |
| To Time | 11 | HH:MM:SS | | Begins with "TT/"followed by the search stop time |
| Message Number | 9 | Alphanumeric | | Begins with "MN/"followed by the message number to be searched for. |
| Sending Workstation | 5 | Alphanumeric | | Begins with "SW/"followed by Sending Workstation which is the subject of the search. |
| Receiving Workstation | 5 | Alphanumeric | | Begins with "RW/"followed by Receiving Workstation |

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| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| | | | | which is the subject of the search. |
| Message Type | 1 | Alphanumeric | | Begins with "MT/"followed by the message type. Currently not implemented. |

An example of a Find Message is:

DAMF/FD/01-FEB-1997 FT/10:22:49 TD/03-FEB-1997 TT/01:10:59 /MN123456780abdc RW/TUPE1 SW/BATE1

**Display Messages**

The Display Messages Message directs the MCHS Switch to display a previously retrieved message. The Display Messages Message consists of a single optional field plus the message identifier delimited by a single slash "/". The fields are positional within the message. The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DAMD | Must always be present as DAMD. |
| Message Number | 14 | Alphanumeric | | Message number assigned to the message by the MCHS Switch subsystem |

An example of a Display Messages Message is: DAMD/5001

**Operator Display**

The Operator Display Message displays all currently logged on operators and their assignments. The Operator Display Message begins with the message identifier delimited by a single slash "/". Fields are preceded by a three-character tag consisting of single alphanumeric character followed by a slash "/". The associated data follows. Fields are delimited by a single space " ". The fields are keyword driven, and are optional. The fields are defined in the table below:

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| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DOPD | Must always be present as DOPD. |
| Operator ID | 8 | Alphanumeric | | Valid operator ID preceded by a "O/" and followed by a space " ". |
| Last Name | 30 | Alphanumeric | | Last name proceeded by a "L/"and followed by a space. |
| First Name | 20 | Alphanumeric | | First name proceeded by a "F/"and followed by a space. |

An example of a Display Messages Message is:   DOPD/O/12345678 L/Smith F/John

**Request Mail**

The Request Mail Message displays responses to previously requests.  When a MCHS Switch-unique message response has been satisfied the user is notified.  When he wants to review the response he submits a Request Mail Message. The Request Mail Message consists solely of the message identifier.    The message is defined in the table below:

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DMAD | Must always be present as DMAD. |

An example of a Request Mail Message is:   DMAD

## 3.2    Message Transmitted from Terminal Servers

A number of workstations on a local-area network may be connected to a server that may act as a concentrator or perform some preliminary formatting or message wrapping before passing the message on. It also may receive messages wrapped, and in this case, remove the wrapping before passing the message on to the local-area network.

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### 3.2.1   Basic Transport Protocol

The following layers are contained in the basic transport protocol.

|   | Contents |
|---|---|
| 4 | Transaction (message) |
| 3 | MCHS Switch Prefix |
| 2 | Message framing |
| 1 | TCP/IP |

Connection to the MCHS Switch from local-area network systems must use TCP/IP socket streams. The MCHS Switch acts as the server. The terminal server acts as a router.  The network administrator for the MCHS Switch assigns specific port numbers and IP addresses at implementation for the terminal server. The local-area network administrator for the district or clients assigns specific port numbers and IP addresses for the client workstations.

The terminal server must prefix all messages sent to the MCHS Switch with the MCHS Switch prefix. This is used to identify the client workstation associated with the message. The terminal server must then frame the resulting message with the NCIC-2000 message wrapper. The DMPP-2020 document provides an example of one implementation of the NCIC-2000 message wrapper.

The framing used is as follows:

*STRP*   a four character start pattern (ff 00 aa 55) indicating the start of a message.

*cccc*   a 32-bit binary count including the lengths of the start and end patterns and the length of cccc (4), transmitted in network order. (The value should be the length of the message (including the MCHS Switch prefix) plus 12.

*The MCHS Switch prefix.*      This prefix contains the name of the client workstation source for the message. The MCHS Switch prefix terminates with a period.

Source          5 bytes 4-character source names have a blank in the 5th byte

Delimiter      1 byte          Delimiter is a period

*The message itself.*   NCIC-2000 escape sequences for embedded binary images are possible.
These are prefixed by the tag IMG/ and followed by a binary byte count, then the image data.

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*ENDP* a four character end pattern (55 aa 00 ff) indicating the end of a message.

An example of a vehicle query from a client workstation name TERM1 on a terminal server with the MCHS Switch prefix added:      TERM1.QV.MS0000000.LIC/ABC123.LIS/MS

This message is $36|_{10}$ or $24|_{16}$ bytes long. The binary byte count in hex would be 00 00 00 24.

After the message is wrapped with the framing patterns the resultant message looks like:

ff 00 aa 55 00 00 00 24 TERM1.QV.MS0000000.LIC/ABC123.LIS/MS 55 aa 00 ff


Messages for a client workstation on a terminal server follow the same format. An example of a response message to a client workstation named TERM1 on a terminal server with the framing and byte count removed but the MCHS Switch prefix in place:

> TERM1.MS0000000
>
> NOT ON FILE ABC123


## 3.2.2 Connecting Terminal Servers

### 3.2.2.1 CIC Responsibilities

To add a terminal server to the MCHS Switch, the CIC is responsible for the following:

- Assigning a name for the line and terminal server

- Assigning an IP address for the terminal server

- Adding a line for the terminal server

- Adding an object mailbox for the line

- Adding an object mailbox for the terminal server

- Adding a terminal server record to the database including:

  1. Terminal server name

  2. Terminals server IP address

The CIC is also responsible for providing the IP address and port number of the MCHS Switch as well as the IP address of the terminal server to the vendor.

### 3.2.2.1.1 Adding Terminal Server Client Workstations

Client workstation and client permissions are assigned and entered into MCHS Switch by the MCHS System Administrator.  This activity must be coordinated and accomplished prior to first

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use of MCHS by either a new user or a new workstation.  Only client workstations are addressed in this document.

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To add a terminal server client workstation to the MCHS Switch, the CIC is responsible for the following:

- Assigning a name for the client workstation

- Adding and object mailbox for the client workstation

- Adding a workstation record to the database for the client workstation including:

  1. Client workstation name

  2. Client workstation security profile

### 3.2.2.2 Vendor Responsibilities

The vendor is responsible for using the IP addresses and client workstation name provided by the CIC. Client workstations must provide NCIC and NLETS messages in the proper format as described in the appropriate manuals.

Whenever a terminal server looses a connection, it must wait 30 seconds before trying to reconnect.

### 3.2.3 Security

Security is implemented at two levels.  First, the terminal server must make an IP connection  to the MCHS Switch. The connection will succeed only if the IP address in the record for the terminal server matches the IP address provided by the terminal server.

The second level occurs when a user at a client workstation signs on to the terminal server. The terminal server will provide the MCHS Switch with certain pertinent information that allows the MCHS Switch to sign the client on.

### 3.2.3.1 CIC Responsibilities

Workstation and user permissions are assigned and entered into MCHS System by the MCHS System Administrator.  This activity must be coordinated and accomplished prior to first use of MCHS by either a new user or a new workstation. During this activity, assignment of security keys is made.  This is derived from the set of tasks permitted the individual user and those tasks allowed from the specified client workstation. The combination of client  and client workstation permissions must be satisfied before any task can be performed.

### 3.2.3.2 Vendor Responsibilities

The terminal server is responsible for maintaining security between the terminal server and the client workstations. The client workstations must sign on and off of the terminal server. The terminal server is responsible for informing the MCHS Switch when a client signs on or off the

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terminal server. The format of the sign on and sign off messages sent to the MCHS switch are described below.

All messages sent from the terminal server to the MCHS Switch must identify the name of the client workstation that is the source of the message by using the MCHS Switch prefix as described in the section on Basic Transport Protocol for Message Transmitted from Terminal Servers.

**Sign On Message**

The Sign On Message allows authorized users to access the MCHS Switch.  The Sign On Message consists of five mandatory fields plus the message identifier all delimited by a single slash "/".  The fields are positional within the message.  The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | alphanumeric | DOPS | Must always be present as DOPS. |
| Agency | 5 max | Alphanumeric | MCH | Only value allowed |
| Operator ID | 8 | alphanumeric | Valid operator ID | |
| Password | 6-8 | alphanumeric | Valid password | |
| Workstation | 5 | alphanumeric | Valid workstation | |
| ORI | 9 | Alphanumeric | Valid ORI | |

An example of a Sign On Message is:   DOPS/mch/operid/passwd/TUPE1/MSMHP0000

**Sign Off Message**

The Sign Off Message notifies the MCHS Switch that the user session is.  It consists of a single mandatory field consisting of the message identifier.  No other data is required.  The Sign Off Message must be the last message sent to the MCHS Switch when terminating a session.  The message format is below.

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | alphanumeric | OPX | Must always be |

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| Field | Length | Format | Value | Notes |
|-------|--------|--------|-------|-------|
|       |        |        |       | present as OPX. |

An example of a Sign Off Message is:   OPX

## 3.2.3.2 Client Responsibilities

The client is responsible for signing on to the terminal server prior to any other message activity.

Clients must sign off when all tasks have been completed. It is not sufficient to power-off the client workstation, the sign-off screen must be invoked.

During the period the client is signed on, all messages that are logged are tagged with the user's ID.  These messages will be stored indefinitely at the Criminal Information Center

The MCHS Switch supports only one sign-on session per client. If a client signs-on at a second workstation while a session is active at the first, the MCHS Switch will automatically sign the client off from the first client workstation prior to completion of sign-on at the second client workstation.

## 3.2.4   Message Structure

All messages sent to MCHS Switch from client workstations receive an acknowledgment. This one line string contains the name of the workstation repeated twice followed by the date and time and the number of the message received from the workstation that day.  The acknowledgment message format is below.

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**Acknowledgment Message**

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Workstation Name | 5 | alphanumeric | Valid Workstation Name | Sending workstation name |
| Blank | 1 | Alphanumeric | Blank | |
| Workstation Name | 5 | alphanumeric | Valid Workstation Name | Repetition of first field |
| Blank | 1 | Alphanumeric | Blank | |
| Message Number | 4 | Numeric | Whole Number | Number of the message sent from the workstation.  It is reset at midnight. |
| Blank | 1 | Alphanumeric | Blank | |
| Time | 8 | hh:mm:ss | Valid hour, minute, and second | Time MCHS Switch received the message |
| Blank | 1 | Alphanumeric | Blank | |
| Date | 8 | mm/dd/yy | Valid month, day, year | Date MCHS Switch received the message |
| Message End | 1 | Newline Character | Newline character | |

An example of an Acknowledge Message is:   21120 21120 0004 12:00:00 01/01/98

This example indicates that workstation 21120 sent MCHS Switch a message at 12:00 on January 1, 1998 and it acknowledges the fourth message transmitted that day.

In addition, all unsolicited messages sent to a terminal server for a client have three parts described below.

- Source Information.  A one line string about the source giving the name, date and time,

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and the inbound message number of the message.

- Message. Complete text of the message/response.

- Destination Information. A one line string about the destination giving the name, date and time, and the outbound message number of this message.

The formats of these messages are below.

**Source Information Portion**

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Workstation Name | 5 | alphanumeric | Valid Workstation Name | Responding workstation |
| Blank | 1 | Alphanumeric | Blank | |
| Message Number | 4 | Numeric | Whole Number | Number of message received from the sender. |
| Blank | 1 | Alphanumeric | Blank | |
| Time | 8 | hh:mm:ss | Valid hour, minute, and second | Time MCHS Switch received the message |
| Blank | 1 | Alphanumeric | Blank | |
| Date | 8 | mm/dd/yy | Valid month, day, year | Date MCHS Switch received the message |
| Message End | 1 | Newline Character | Newline character | |

An example of the Source Information portion is:   NCIC 1203 12:00:03 01/01/98

This response indicates that NCIC is sending a response at three seconds past noon on January 1, 1998 and it is the 1,203 response from NCIC.

**Message Portion**

The format of the message depends on the sender.

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**Destination Portion**

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Workstation Name | 5 | alphanumeric | Valid Workstation Name | Receiving workstation name |
| Blank | 1 | Alphanumeric | Blank | |
| Message Number | 4 | Numeric | Whole Number | Number of message sent to the workstation. It is reset at midnight. |
| Blank | 1 | Alphanumeric | Blank | |
| Time | 8 | hh:mm:ss | Valid hour, minute, and second | Time MCHS Switch created the message |
| Blank | 1 | Alphanumeric | Blank | |
| Date | 8 | mm/dd/yy | Valid month, day, year | Date MCHS Switch created the message |
| Message End | 1 | Newline Character | Newline character | |

An example of the Destination portion is:   21120 0005 12:00:03 01/01/98

This example indicates the NCIC response above was sent to workstation 21120 at three seconds past midnight on January 1, 1998 and it was the fifth message sent to 21120.

Messages bound for NCIC follow the formats described in the NCIC manuals beginning with the Message Key (MKE).  The MCHS Switch places additional header information on all NCIC messages but this is not the responsibility of the transmitting terminal.

Messages bound for NLETS follow the formats described in the NLETS manual. There is no special NLETS header.

Messages bound for the workstations from the MCHS Switch subsystem are treated as unformatted text. There is no special processing for any message received regardless of its source: NLETS, NCIC, MCHS.

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There are seven MCHS specific messages which the MCHS Switch processes. Client workstations integrating with MCHS must support these messages. They are described below:

**Change Password**

The Change Password Message directs the MCHS Switch to change a users password. The Change Password Message consists of three mandatory fields plus the message identifier all delimited by a single slash "/". The fields are positional within the message. The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | alphanumeric | DPWD | Must always be present as DPWD. |
| New Password | 6-8 | alphanumeric | | |
| Old Password | 6-8 | alphanumeric | | Must be a valid password. |
| Confirmation | 6-8 | alphanumeric | | Must be identical to the New Password field. |

An example of a Change Password Message is:   DPWD/0abcde/psswrd0/0abcde

**Local Administrative Message**

The Local Administrative Message is used to send free-text messages to up to five terminal destinations within the MCHS user community. The Local Administrative Message consists of a combination of mandatory fields. The fields are positional. An exception is the Terminal Destination which can occur from one to five times. The fields are defined in the table below:

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| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DMSG | Must always be present as DMSG.  It is delimited by a single slash "/". |
| Network Source | 4 (may expand to 5) | Alphanumeric | MCHS | Currently there is only one network supported, MCHS. This value is followed by a single comma ",". |
| Workstation Source | 5 | Alphanumeric | | Must be the five-character workstation id.  It is followed by a single comma ",". |
| Network Destination | 4 (may expand to 5) | Alphanumeric | | Currently there is only one network supported, MCHS. This value is followed by a single comma ",". |
| Terminal Destinations | 5 or 9 | Alphanumeric | | One to five terminal ids or ORIs which will receive the message.  They are delimited by a single comma ",", and ended by a single period ".". |
| Message Text | Up to 15,000 | Alphanumeric | | Free text |

An example of a Local Administrative Message is:   DMSG/MCHS,TUPE1,MCHS,BATES1, ORI456789. The Tupelo office will send the requested materials today.

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**Find Message**

The Find Message is used to search for, and find messages stored by the MCHS Switch in its local data stores. This message will not search archived messages stored on the Level II Journal System. Only the message IDs are returned. Contents of the message must be displayed using the Display Messages Message. A user may find messages from/to the user's workstation only.

The Find Message consists of a combination of mandatory and optional fields. Fields are preceded by a three-character tag consisting of two alphanumeric characters followed by a slash '/'. The associated data follows. Fields are delimited by a single space " ". The fields are keyword driven, and are optional. The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DAMF | Must always be present as DAMF. It is delimited by a single slash '/'. |
| From Date | 11 | DD-MMM-CCYY | | Begins with "FD/"followed by beginning date for search. |
| From Time | 8 | HH:MM:SS | | Begins with "FT/"followed by beginning time for search. |
| To Date | 11 | DD-MMM-CCYY | | Begins with "TD/"followed by the search stop date |
| To Time | 11 | HH:MM:SS | | Begins with "TT/"followed by the search stop time |
| Message Number | 9 | Alphanumeric | | Begins with "MN/"followed by the message number to be searched for. |
| Sending Workstation | 5 | Alphanumeric | | Begins with "CW/"followed by |

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| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Workstation | | | | "SW/"followed by Sending Workstation which is the subject of the search. |
| Receiving Workstation | 5 | Alphanumeric | | Begins with "RW/"followed by Receiving Workstation which is the subject of the search. |
| Message Type | 1 | Alphanumeric | | Begins with "MT/"followed by the message type. Currently not implemented. |

An example of a Find Message from workstation TUPE1 is:

DAMF/FD/01-FEB-1997 FT/10:22:49 TD/03-FEB-1997 TT/01:10:59 /MN123456780abdc
RW/TUPE1 SW/BATE1

**Display Messages**

The Display Messages Message directs the MCHS Switch to display a previously retrieved message. The Display Messages Message consists of a single optional field plus the message identifier delimited by a single slash "/". The fields are positional within the message. The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| Identifier | 4 | Alphanumeric | DAMD | Must always be present as DAMD. |
| Message Number | 14 | Alphanumeric | | Message number assigned to the message by the MCHS Switch |

An example of a Display Messages Message is:   DAMD/5001

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**Operator Display**

The Operator Display Message displays all currently logged on operators and their assignments. The Operator Display Message begins with the message identifier delimited by a single slash "/". Fields are preceded by a three-character tag consisting of single alphanumeric character followed by a slash "/". The associated data follows. Fields are delimited by a single space " ". The fields are keyword driven, and are optional. The fields are defined in the table below:

| Field | Length | Format | Value | Notes |
|-------|--------|--------|-------|-------|
| Identifier | 4 | Alphanumeric | DOPD | Must always be present as DOPD. |
| Operator ID | 8 | Alphanumeric | | Valid operator ID preceded by a "O/" and followed by a space " ". |
| Last Name | 30 | Alphanumeric | | Last name proceeded by a "L/"and followed by a space. |
| First Name | 20 | Alphanumeric | | First name proceeded by a "F/"and followed by a space. |

An example of a Display Messages Message is:   DOPD/O/12345678 L/Smith F/John

**Request Mail**

The Request Mail Message displays responses to previously requests. When a MCHS Switch-unique message response has been satisfied the user is notified. When he wants to review the response he submits a Request Mail Message. The Request Mail Message consists solely of the message identifier.   The message is defined in the table below:

| Field | Length | Format | Value | Notes |
|-------|--------|--------|-------|-------|
| Identifier | 4 | Alphanumeric | DMAD | Must always be present as DMAD. |

An example of a Request Mail Message is:   DMAD

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## 3.3    Card Scan

MCHS receives and processes NIST-style (National Institute for Standards and Technology) tenprint messages from Card Scan workstations.  Source document content is entered through the Card Scan workstations.  The Card Scan software then packages the documents into NIST format and transmits the NIST files to the Controller subsystem via MIME-encoded SMTP e-mail.  After the Controller parses and validates the header information, it forwards the NIST transactions to the appropriate subsystems such as AFIS and Repository for further processing.  After the transactions have been processed, the Repository may generate an output message such as a rap sheet (in either printed form or ANSI/NIST form) or EFTS file.  ANSI/NIST responses will be sent via MIME-encoded SMTP e-mail to the recipients such as an ORI agency or the FBI.

A NIST-formatted transaction consists of a number of different record types.  The type 1 record serves as a message header containing basic source and destination information.  Type 2 records contain textual identification and descriptive information from the source document.  Type 4 records contain fingerprint image data.  Type 7 data records contain the source document image.  Type 10 records contain mug shots.

### 3.3.1    Basic Transport Protocol

Connection to the Controller subsystem from Card Scan workstations must be via SMTP or POP3 e-mail.  After a data entry operator enters the text data and scans in the fingerprint images, the Card Scan software validates the text data, then packages the text data and images into NIST format.  The NIST format data is then transmitted to the Controller subsystem via MIME-encoded SMTP/POP3 e-mail.  (MIME stands for Multipurpose Internet Mail Extensions.)

The e-mail message must contain the following header items:

- To: controller@mscjis.mchs.state.ms.us or To: controller@10.64.1.121,

- From: <registered user name, possibly in for form user@host if not POP3>,

- Subject: <subject line> as described below,

- Content-type: application/octet-stream, and

- Content-transfer-encoding: Base64.

Note that the NIST file is the only content of the message and that MIME content type of multi-part/mixed (with one part being application/octet-stream) is not allowed.  Binary data is encoded using base 64 as documented in the MIME RFC. Except for the subject line described below, the case of elements in the header generally does not matter.  Each e-mail message must have a subject line in this format:

<TOT>; <Unique ID#>; <Last Name>, <First Name>; <DOB>; <L/C>

Note that the fields in the subject line are separated by a semi-colon ";" except for the Last

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Name, which is followed by a comma.  For example, the subject line of an Arrest Fingerprint transaction looks like this:

ARR; 0001620681; Johnson, Curtis; 19470805; C

The fields in the subject line are defined in the table below:

| Field | Length | Format | Value | Notes |
|---|---|---|---|---|
| TOT | 3 | alphabetical | Type of transaction: ARR, APP, or DOC | Followed by a semi-colon. |
| Unique ID Number | up to 12 | alphanumeric | For ARR, it is the Arrest Tracking Number. For APP, Originating Agency Identifier. For DOC,  Department of Corrections Number. | Followed by a semi-colon. |
| Last Name | 35 | alphabetical | Subject's last name | Followed by a comma. Mixed case. |
| First Name | 20 | alphabetical | Subject's first name | Followed by a semi-colon.  Mixed case. |
| DOB | 8 | numeric | Subject's date of birth | Must be in format CCYYMMDD |
| L/C | 1 | alphabetical | "L" for Live Scan "C" for Card Scan | "L" if the data is transmitted from Live Scan; "C" if transmitted  from Card Scan |

### 3.3.2   Security

Security for Card Scan submissions is handled at the Card Scan workstations prior to submission and at the Controller subsystem after submission.  Not all operators are enabled to enter data for all source documents.  The Card Scan software checks the operator's access privileges before committing any data to the database.  The Card Scan devices have their own machine dependent set of user names and passwords that must match those pairings stored in the Repository server.  The user name entered in the Card Scan appears on the FROM line of the e-mail messages sent to the Controller subsystem.

After the transaction is received by the Controller, the Controller requests the user validation

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service from the Repository subsystem to validate the user's access privileges and returns the validation status along with other information to the Controller. If it is found that the user is not authorized to enter the transaction, a rejection message will be sent to the user mchs in the Repository server via SMTP e-mail.

### 3.3.3 Outgoing Message Structure

The NIST data consists of two types of records: textual and binary. The textual records are divided into fields, subfields, and items. Each field has a tag of the form t.nn: where t is the record type number and nn is a field number. ASCII control characters FS, RS, GS, and US separate values which are in ASCII. FS separates records; GS separates fields within records; RS separates subfields within fields; and US separates items within subfields. The binary records have a binary byte count followed by data in fixed fields.

The following types of NIST records are used in MCHS:

**Type 1 Record:** The header record contains textual information about the transaction such as the type of transaction, (arrest fingerprint, applicant fingerprint, etc.), originator, date and priority, and logical record length.

The fields in the Type 1 Record are defined in the table below:

| Field # | Field | Mandatory | Length | Format | Field Description |
|---------|-------|-----------|--------|--------|-------------------|
| 1.01 | LEN | Yes | | Numeric | Logical record length |
| 1.02 | VER | Yes | 4 | Numeric | Format version number |
| 1.03 | CNT | Yes | | | Inventory of contents |
| 1.04 | TOT | Yes | 3 | Alphanumeric | Type of transaction |
| 1.05 | DAT | Yes | 8 | Numeric | Date in format CCYYMMDD |
| 1.06 | PRY | No | 1 | Numeric | Priority |
| 1.07 | DAI | Yes | 9 | Alphanumeric | Destination agency identifier |
| 1.08 | ORI | Yes | 9 | Alphanumeric | Originating agency identifier |
| 1.09 | TCN | Yes | 16 | Alphanumeric | Transaction control number |
| 1.10 | TCR | No | 16 | Alphanumeric | Transaction control reference number |
| 1.11 | NSR | Yes | 6 | Alphanumeric | Native scanning resolution |

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| Field # | Field | Mandatory | Length | Format | Field Description |
|---------|-------|-----------|--------|--------|-------------------|
| 1.12 | NTR | Yes | 6 | Alphanumeric | Nominal transmitting resolution |

**Type 2 Record:**  This record contains the textual information associated with the specific transaction.  The format of this record varies depending on the transaction type. The field definitions of the Type 2 Record can be found in Appendix A.

**Type 4 Record:**  High resolution grayscale image record containing fingerprint binary data from the card scan devices, as defined in ANSI/NIST Standard and compliant with FBI/EFTS image content requirements.  There may be up to fourteen Type 4 records.

**Type 7 Record:**  Operator-defined binary data transmissions are defined for Type 7 records. The MCHS uses Type 7 records for transmission of all MCHS document images such as fingerprint cards and prosecutor disposition forms.  Type 7 records are Fax Group Four compressed within a TIFF format.  These records are not required from remote Card Scan or Live Scan devices.

**Type 10 Record:**  A combination of text fields and binary data containing a mug shot image. Type 10 records may be present but are stored only for DOC transactions.

The field definitions of the Type 2 Record can be found in Appendix A.  This purpose of this appendix is to define the field structure and attributes for the electronic formats in which source document data is transmitted from the Data Entry subsystem to the Controller.  The NIST Type-2 message formats limit and define the data structures which are provided to store MCHS data. These not only have an important bearing on the MCHS internal functionality, but on the MCHS data compatibility with external applications such as the Interstate Identification Index (III).

### 3.3.4   Incoming Messages and Processing Requirements

The data edit tables which Data Entry work stations use to perform local context-free data verification are retained, managed, and distributed from the Repository.  These edit tables are kept in the MCHS Repository so that standard data integrity procedures can be applied to assure accurate, consistent maintenance of all database entries.  They are maintained by the Enhanced CCH workstation, using an Oracle Forms application provided as part of the Repository subsystem.  In order to reduce network traffic, local copies of the edit tables are maintained on the Data Entry workstations and initial field-level editing takes place there.

The Repository downloads the edit tables only if they have changed since the operator last logged on.  After updates have been made to MCHS edit tables, an administrator can select to push these new values out to the field via a menu option in the Enhanced Criminal History workstation application.  This menu option creates a file of all edit values and e-mails it to every remote station.  The format of each line in this file is as follows:

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- A 20 character element name corresponding to an ANSI/NIST field or subfield,

- A single space,

- A 30 character code value for the field or subfield,

- A single space, and

- A 120-character description for the code value.

where an element delineates a particular set of codes (e.g. Agency, Eye Color, Hair Color) as shown in the table below.

| | | | |
|---|---|---|---|
| Agency | Agency Type | Arrest Type | Citation Type |
| Correct Agency | Corrections Status | Country | Court Agency |
| Court Event | Enforce Agency | Enforce Event | Eye Color |
| Hair Color | Misc Number Type | Money Condition | Name Suffix |
| Notify For | Prosecute Agency | Prosecute Event | Race |
| Rap Sheet Type | Reason Fingerprinted | Sample Type | Severity |
| Sex | State | Statute | Supplement |
| Tattoo | Time Condition | Yes/No | Yes/No/Unknown |

Yes/Unknown

Some of these element names relate to fields in prosecutor or court dispositions and hence do not apply to tenprint source documents. These edit elements and codes should be ignored. The element, code, and description fields are right padded with spaces.

The edit table update message is addressed to an e-mail recipient taken to be the card scan station itself, not to a specific operator of the station. The e-mail message is a normal ASCII text message with a subject of 'EDT'.

The Data Entry subsystem does not provide ordinary operators with the ability to update the data edit tables. Requested updates to these tables must be transmitted to DPS through normal administrative channels, and are implemented only by authorized personnel at the MCHS central site.

## 3.4   Live Scan

The Live Scan is very similar in function to the Card Scan portion of the document scanning station in capturing and submitting fingerprint images and textual information, without using hard copy source documents in the process. The Live Scan software packages the source

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document information into NIST format and transmits the NIST files to the Controller subsystem via MIME-encoded SMTP e-mail.  After the Controller parses and validates the header information, it forwards the NIST transactions to the appropriate subsystems such as AFIS and Repository for further processing.  After the transactions have been processed, the Repository may generate an output message such as a rap sheet (in either printed form or ANSI/NIST form) or EFTS file.  ANSI/NIST responses will be sent via MIME-encoded SMTP e-mail to the recipients such as an ORI agency or the FBI.

A NIST-formatted transaction consists of a number of different record types.  The type 1 record serves as a message header containing basic source and destination information.  Type 2 records contain textual identification and descriptive information from the source document.  Type 4 records contain fingerprint image data.  Type 7 data records, which contain the source document image, do not apply to Live Scan operations and should not appear in the NIST transaction.  Type 10 records contain mug shots.

### 3.4.1   Basic Transport Protocol

Connection to the Controller subsystem from Live Scan workstations must be via SMTP or POP3 e-mail, just as for a Card Scan workstation.  The only difference for Live Scan stations is that the final field of the subject line is 'L' indicating Live Scan rather than 'C' for Card Scan.

See Section 3.3.1 for more detail.

### 3.4.2  Security

The Live Scan devices have their own machine dependent set of user names and passwords that must match those pairings stored in the Repository server.  The user name entered in the Live Scan will appear on the FROM line of the e-mail messages sent to the Controller subsystem.

After the transaction is received by the Controller, the Controller requests the user validation service from the Repository subsystem to validate the user's access privileges and returns the validation status along with other information to the Controller.  If it is found that the user is not authorized to enter the transaction, a rejection message will be sent to the user mchs in the Repository server via SMTP e-mail.

### 3.4.3   Outgoing Message Structure

The outgoing message structure for Live Scan transactions is the same as for Card Scan transactions.  See Section 3.3.3.

### 3.4.4   Incoming Messages and Processing Requirements

Messages arriving at the Live Scan are the same as those arriving at the Card Scan (see Section 3.3.4) except that one additional message may be received.  This message provides a block of Arrest Tracking Numbers (ATNs) for use by the Live Scan system.

The ATN block message is addressed to an e-mail recipient taken to be the Live Scan station

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itself, not to a specific operator of the station. The e-mail message is a normal ASCII text message with a subject of 'ATN'. The message body contains four lines, each consisting of a single number. The numbers have the following meanings:

- Lower limit of the current ATN block,

- Upper limit of the current ATN block,

- Lower limit of the next ATN block, and

- Upper limit of the next ATN block.

The first two numbers are used to verify the current range being used at the Live Scan station. The second pair of numbers is the new range. The concept is that each station would be assigned two ranges and would MCHS Switch from the first range to the second at the appropriate time. Following the MCHS Switch, a new block of ATNs would be manually requested and subsequently sent to the station.

ATNs are consecutive within the range but a check digit must be suffixed to each. The algorithm is given below.

```
1. Set sum to 0 and weight to 2.
2. Loop over the digits of the ATN from rightmost to leftmost.
   3. Multiply the current digit by the weight and add the product
      to the sum.
   4. Increment the weight.
5. End loop.
6. Divide the sum by 11 and subtract the remainder from 11.
7. The check digit is the result of the previous step if the result
   is in the range 1 through 9.  If the result is 10, the check
   'digit' is 'X' and the check digit is 0 if the previous step
   yielded a result of 11.
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```

# APPENDIX A    ANSI/NIST TENPRINT FORMAT

This appendix defines the format for the National Institute of Standards and Technology (NIST) transactions that have been used in the MCHS to transmit source document input.  MCHS supports eight NIST-formatted source documents and one NIST-formatted output document (the criminal history record, or rap sheet).  Each of these is identified by a Type of Transaction (TOT) value in the NIST Type-1 record that serves as a message header.  The documents and their TOT values are:

| Document Name | Type of Transaction |
| --- | --- |
| Arrest Fingerprint Card | ARR |
| Applicant Fingerprint Card | APP |
| Department of Corrections Inmate Receipt Fingerprint Card | DOC |
| Prosecutor Disposition Report | PRO |
| Court Disposition Report | CRT |
| Consolidation Order | CON |
| Expunction Order | EXP |
| Department of Corrections Transfer Data | DCT |
| Criminal History Record (Rap Sheet) | RAP |

*Exhibit A-1.  Types of Transaction*

Source documents described in this appendix are:

- Arrest Fingerprint Card,

- Applicant Fingerprint Card, and

- Department of Corrections (DOC) Inmate Receipt Fingerprint Card.

Other transactions may only be entered at the MCHS central site or are not entered via fingerprint scanning stations.  In addition to the NIST Type-2 records, there is a Type-10 record that is used to transmit Mug Shots.  At present, only the Live Scan Workstation located at the Mississippi Department of Corrections (MDOC), Central Mississippi Correctional Facility (CMCF) provides the capability to capture a Mug Shot; consequently, Mug Shot Type-10 records, which may be included in any tenprint transaction, are processed in the DOC Inmate Receipt Fingerprint Card transaction.  The format of the Mug Shot Type-10 record is described in Appendix A.3.

ANSI/NIST-CSL 1-1993, paragraph 6.1, page 4, states, "For each Type-1, Type-2, and Type-9 record that is formulated, the fields contained within that record shall be numerically ordered." However, MCHS application design does not assume numeric ordering for the fields in these records.  The other record types defined in the standard do not have numbered fields.

We are assuming that the fields in a Type-2 record may contain printable characters only. ANSI/NIST-CSL 1-1993, paragraph 9, page 10, states, "Type-2 logical records shall contain

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textual information relating to the subject of the transaction and shall be represented in an ASCII format."  Paragraph 9.1.3 states, "Individual fields required for given transaction types, including field size and content, shall conform to the specifications set forth by the agency to whom the transmission is sent."  FBI examples show text in all upper case, but the MCHS standard will be mixed case.

Information separator characters and their abbreviations are:

| Description | Abbreviation | ASCII Code |
|---|---|---|
| File Separator | FS | 1C |
| Group Separator | GS | 1D |
| Record Separator | RS | 1E |
| Unit Separator | US | 1F |

*Exhibit A-2.  Information Separator Characters*

## A.1   Type-1 Record

The type-1 record is as defined in the ANSI/NIST-CSL 1-1993 standard.  It must be the first record in the transaction.

## A.2   Tenprint Type-2 Record

The NIST Type-2 fields are listed below.  Those fields for which a field number is available (i.e., those fields defined in the source FBI documentation) are listed first, in field number order, followed by those new fields which were identified in RFP 2776 but for which no number had been provided.  For each field, the following information is provided:

1.  Field identification (field number and field name).

2.  Field description (data type and length, whether or not the field repeats, and TOTs in which the field occurs).

3.  Discussion (the source document(s) from which the field description was derived; the expected data content and function; and the considerations which determined our field description).

4.  Issues (any matters on which we required customer feedback).

This section combines the message formats for the following source documents:

* Arrest Fingerprint Card,

* Applicant Fingerprint Card, and

* DOC Inmate Receipt Fingerprint Card.

These, in turn, are represented by the following NIST TOTs:

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| Code | Description |
|------|-------------|
| ARR | Arrest |
| APP | Applicant |
| DOC | Department of Corrections Inmate Receipt |

*Exhibit A-3.  Tenprint Card Types of Transaction*

Layout for the ARR TOT is taken from the EFTS CAR record, starting on page D-1, with exceptions as stated on RFP 2776 pages 83 and 84.  These exceptions are listed below.

- Retention Code is not used;

- Attention Indicator is not used;

- Send Copy To is not used;

- Name and Aliases fields are combined into a single NAME field which allows multiple occurrences;

- Age Range is not used;

- Height Range is not used;

- Weight Range is not used;

- NCIC Fingerprint Classification is not used;

- Date of Arrest Suffix is not used;

- Arrest Segment Literal is not used;

- Court Segment Literal is not used;

- Custody or Supervisory Status Start Date is not used;

- Custody or Supervisory Status Literal is not used;

- Sex is redefined to allow only Male, Female;

- Race is redefined to provide spelled-out versions of the FBI codes;

- Scars, Marks, Tattoos is redefined to provide two subfields: first same as FBI list, second a free-text description;

- Color Eyes is redefined to provided spelled-out versions of FBI codes;

- Hair Color is redefined to provide spelled-out versions of FBI codes;

- Pattern Level Classifications will be redefined to fit the Mississippi AFIS codes;

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- Palm Prints Available Indicator will be redefined to Yes, No;

- Photo Available Indicator will be redefined to Yes, No;

- Occupation and Employer and Address will be combined into a single field with two subfields;

- Arrest Tracking Number will be added;

- Arresting Agency ORI will be added;

- Driver License field will be added with two subfields: state, number;

- Arrest Type field will be added with these options: Adult, Juvenile, Juvenile as Adult; and

- Arrest Charges will be added as a field with these subfields: Severity, Counts, Citation, Description, Offense Date, Disposition.

Layout for the APP TOT is taken from the EFTS NFUF record, starting on page D-19, with exceptions as stated on RFP 2776 page 87. These exceptions as excerpted from RFP 2776 are shown below.

The type-1 record shall be the same as that defined for the NFUF-type electronic document in the FBI document "Electronic Fingerprint Transmission Specification," the version in effect on the day of contract, with these exceptions:

- Type of Transaction to be APP; and

- Designation Agency Identifier to be the ORI for MCHS.

The type-2 record for textual data shall be the same as that defined in the same FBI document, same version, except:

- Retention Code is not used;

- Attention Indicator is not used;

- Send Copy To is not used;

- Name and Aliases fields are combined into a single NAME field which allows multiple occurrences;

- NCIC Fingerprint Classification is not used;

- Place of Birth is not used;

- Country of Citizenship is not used;

- Scars, Marks and Tattoos is not used;

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- Color Eyes is not used;

- Hair Color is not used;

- Employer and Address is not used;

- Occupation is not used;

- Residence of Person Fingerprinted is not used;

- Gender is redefined to allow only Male, Female;

- Race is redefined to provide spelled-out versions of the FBI codes;

- Pattern Level Classifications will be redefined to fit the Mississippi AFIS codes;

- Driver License field will be added with two subfields: State, Number; and

- Fields are added for FeePaid; ResponseAddress; Purpose.

Layout for the DOC TOT is taken from the ARR TOT, with exceptions as stated on RFP 2776 page 88.  These exceptions are shown below.

The type-1 record is the same except:

- The Type of Transaction will be DOC.

The type-2 record is the same except:

- Occupation, Employer and Address field is not used;

- Residence of Person Fingerprinted is not used;

- Date of Arrest is not used;

- Arresting Agency ORI will not be used;

- Arrest Type field will not be used;

- Arrest Charges field will not be used;

- DOC field will be added; and

- Previous Status field will be added.

## A.2.1  Tenprint Fields

The field list below contains combined entries for all three Tenprint TOTs.  Presented first are the fields that can be mapped from the RFP to existing EFTS fields.  Following those are those new fields for which no existing EFTS field number can be identified.

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### A.2.1.1 Existing Fields

**2.001  Logical Record Length:**

Description:           Five-digit integer; non-repeating; occurs and is mandatory on ARR, APP and DOC records.

Discussion:           EFTS page C-9 states, "This field contains the length of the logical record specifying the total number of bytes, including every character of every field contained in the record.  The length of the LEN field is included in the total length of the record."  This length includes the information separator characters.

**2.002  Image Designation Character (IDC):**

Description:           Two-digit integer; non-repeating; occurs and is mandatory on ARR, APP and DOC records.

Discussion:           EFTS page C-8 states, "The Image Designation Character shall be a sequentially assigned positive integer starting from zero and increasing by one for each finger position, image, or Type-2 record present.  Each IDC value matches a value in the Content (CNT) field of the Type-1 message header."

**2.008  "No Charge" Indicator:**

Description:           Ten-digit integer; non-repeating; occurs and is optional on APP records only.

Discussion:           The name is a bit misleading.  EFTS page C-11 states, "When a User Fee transaction is resubmitted and no additional payment should be charged, this field shall contain the Transaction Control Number of the original submission."  The Transaction Control Number is in the Type-1 record, field number 1.09, identifier TCN.  Page D-22 describes the "No Charge" Indicator as "Applicable on resubmission only so fee is not charged again," and it would appear that the presence of this field is what identifies the record as a resubmission.

**2.009  Originating Agency Case Number:**

Description:           Ten-character alphanumeric; non-repeating; occurs and is optional on ARR and APP records.

Discussion:           EFTS page C-11 states, "This field contains the 1-10-character Originating Agency Case Identifier (OCA) that has been assigned by this agency."  'This" agency means the originating agency.  As a result of Technical Exchange Meeting (TEM) Number 3, it has been determined that this field does not occur on the DOC record.

**2.014  FBI Number:**

Description:           Nine-character alphanumeric; non-repeating; occurs and is optional on ARR, APP and DOC records.

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Discussion                EFTS page C-5 states, "This field contains the subject's FBI number, if known.  A valid FBI number shall be no more than nine alphanumeric characters."

## 2.015   State Identification Number (SID):

Description:                Ten-character alphanumeric; non-repeating; occurs on ARR and DOC records only; is not permitted on records input to MCHS, but is mandatory on records passed from MCHS to III.

Discussion:                EFTS page C-15 states, "This field contains any known state identification number.  The format is the standard two-character abbreviation of the state name, followed by the number."  EFTS page D-1 shows this as a 3-10 character alphanumeric item; optional; repeating, with zero to five occurrences.  A length of ten characters would permit the use of eight numeric digits in addition to the two-character abbreviation of the state name.

The numeric portion of the SID must include a check digit, as must the ATN, and the same check digit algorithm must be used for both.  The Modulus/11 algorithm has been used as per direction by the State.

The SID is the MCHS logical master key for a criminal subject.  Since MCHS is the sole judge of what the correct SID is, SID is not accepted as an input value; however, once the subject has been registered in MCHS, the SID must accompany subsequent transactions regarding that subject.

## 2.016   Social Security Account Number:

Description:                Nine-digit integer; repeats zero to four times; occurs and is optional on ARR, APP and DOC records.

Discussion:                EFTS page C-1 states, "This field shall contain the subject's social security number, if known.  This number shall be entered as nine or ten consecutive digits with no embedded punctuation characters. . . .No foreign social security numbers shall be used."  EFTS page D-1 describes this field as a 9-10 digit numeric value.

We know of no reason to suppose that a Social Security Number can have ten digits.  NCIC Part IV, Section 16, page 4-29, states, "Must be nine numeric characters and not less than 001010001.  The use of an 8 or 9 as the first character or 00 in the fourth and fifth positions is prohibited."

## 2.017   Miscellaneous Identification Number:

Description:                Alphanumeric field consisting of two subfields; repeats zero to four times; occurs and is optional on ARR, APP and DOC records.  Subfields are as follows:

| Field | Length |
|---|---|
| Number Type | 15 |
| Number Value | 12 |

*Exhibit A-4.  Miscellaneous Number Subfields*

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Discussion:          EFTS page C-10 states, "If there are any miscellaneous identification numbers, they shall be entered in this field.  The format of the data shall be a two-letter identifying code, followed by a hyphen (-), followed by the number itself.  The following table lists the acceptable two-letter identifying codes.  If 'AF' or 'AS' is entered, all characters following the hyphen must be numeric.  Interspersed blanks are invalid.  Types of numbers not listed in the following table (such as driver's license) shall not be entered.  Only U.S. passport numbers shall be entered; foreign numbers shall be ignored.  The size of the MNU is limited to 15 characters. . . ."  EFTS page D-1 shows a 15-character MNU field consisting of a two-character type, a hyphen, and 12 characters of MNU value.  We will use a more explicit structure with two subfields.

The EFTS table of codes follows:

| Identifying Agency | Code |
|---|---|
| Air Force Serial Number | AF |
| Alien Registration Number | AR |
| Air National Guard Serial Number, Army Serial Number, or National Guard Serial Number | AS |
| Bureau Fugitive Index Number | BF |
| Canadian Social Insurance Number | CI |
| U. S. Coast Guard Serial Number | CG |
| Identification Order Number | IO |
| Marine Corps Serial Number | MC |
| Mariner's Document or Identification Number | MD |
| RCMP Identification or Fingerprint Section Number | MP |
| National Agency Case Number | NA |
| Navy Serial Number | NS |
| Passport Number (U. S. only) | PP |
| Port Security Card Number | PS |
| Selective Service Number | SS |
| Veterans Administration Claim Number | VA |

*Exhibit A-5.  Miscellaneous Number Codes*

DPS requested that a 15-character expanded type value, rather than a two-character code, will be stored in the Repository.  A table of codes must be available, however, in order to convert Repository values for export to III.   Further, DPS may want to use Miscellaneous Number types not found on the EFTS list of number types.  These issues do not affect the message structure.

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**2.018   Name/Aliases:**

Description:                Alphanumeric field consisting of four subfields; repeats zero to 11 times; occurs and is mandatory on ARR, APP and DOC records.  Subfields are as follows:

| Field | Length |
|---|---|
| Last Name | 35 |
| First Name | 20 |
| Middle Name | 20 |
| Suffix | 4 |

*Exhibit A-6.  Subject Name Subfields*

Discussion:                RFP page 83 states, "Name and Aliases fields are combined into a single NAME field which allows multiple occurrences."  For field number 2.018, NAM (Name), EFTS page C-10 states, "This field contains the name(s) of the subject.  The format shall be the surname followed by a comma, followed by the given name(s), which are separated by a space. Part IV of the NCIC Code Manual describes in greater detail the manner in which each name is to be entered."  For field number 2.019, AKA (Aliases), EFTS page C-1 states, "This field contains alias names of the subject.  The format is the same as described in the NAM field, including NCIC formatting rules, and the same 30-character limit applies to the field length.  Up to ten aliases may be provided, separated from one another by the RS character."  The formatting rules are found on NCIC pages 4-1 and 4-2.  The NAM field is mandatory on the ARR, APP and DOC records; combining it with the AKA field gives a total of 11 possible occurrences.

Thirty characters is not enough to store certain Hispanic names, in which both the paternal and maternal surnames may occur (for example, "JOSE ANTONIO DE LA MADRID-RODRIGUEZ").  In such cases, the NCIC rule is to abbreviate the middle name and, if necessary, the first name, and then to store various permutations of the name as aliases.  Also, the task of parsing out the elements of a single name field can be complex and error-prone.  A better solution is to provide separate subfields for the name components, and make these subfields long enough to store a complete name without abbreviation.  This is the approach contemplated in the RFP, as illustrated in the sample Rap Sheet Type-2 message on page 78 and the IDENTIFICATION table definition on page 96.  We have taken the column lengths from that table.  We consider, however, that the 20-character length proposed for last name is not enough, and have used 35 characters instead.

Where MCHS must exchange Name data with external sources which use the standard NCIC name format, it is necessary to parse this format into the MCHS Name data elements.

On page D-1, EFTS shows the ampersand as a valid character for the AKA (Alias) field but not for the NAM (Name) field.  NCIC makes no mention of the ampersand.  We know of no special use for an ampersand in this context, and the MCHS design makes no special provision for this character.

RFP page 97 shows no edit for the suffix element, but page 104 shows EDIT table values for NameSuffix.  However, the largest of these values is only three characters.  The suffix is shown as four characters long, and this length has been retained.

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It should be emphasized to the operators, and to any consumer of the data, that this model makes no distinction between "true" name and alias. Attempts to implement or infer such a distinction (for example, by entering the "true" name first, followed by aliases, or by reading such a convention into the data) should be strongly discouraged.

## 2.020 Place of Birth:

Description: Two-character alphanumeric; non-repeating; occurs and is mandatory on the ARR and DOC records only.

Discussion: EFTS page C-12 states, "The subject's place of birth shall be entered in this field. Indicate in this POB field the state (Mexican, United States), territorial possession, province (Canadian), or country of birth. The appropriate two-letter abbreviation shall be used as listed in Part IV of the NCIC Code Manual." NCIC Part IV refers to the state and country codes listed in Part VI. EFTS also provides criteria for coding the Place of Birth when the State is not provided.

## 2.021 Country of Citizenship:

Description: Two-character alphanumeric; non-repeating; occurs and is optional on the ARR and DOC records only.

Discussion: EFTS states, "This field contains the name of the country of which the subject is a citizen. Entry must be a valid country code from Code Table POB in Part IV of the NCIC Code Manual."

## 2.022 Date of Birth:

Description: Eight-digit integer; repeats one to five times; occurs and is mandatory on the ARR, APP and DOC records.

Discussion: EFTS page C-3 states, "This field contains the date of birth. It is entered as an eight-digit number in the same format as specified for CDD." That format is YYYYMMDD. EFTS continues, "A ninth character, a hyphen, is added in the rightmost position of the first listing of DOB for all persons less than 18 years of age. MM must be 01-12. DD must be 01 to valid length of month and year combination. If day, month or year is unknown, enter as 00. If day, month or year is unknown, enter as 00. Up to five multiple occurrences of this field may be listed to indicate different dates of birth. . .".

MCHS will require a complete, valid date for all fields that contain a date value. Incomplete dates (for example, '19640500') or invalid dates (for example, '19630229') are not accepted.

The EFTS ninth-character flag for persons less than 18 years of age is redundant, and is not supported in the MCHS design. The subject's age at the time of arrest can be obtained by comparing the Date of Birth with the Date of Arrest, while the Arrest Type will indicate whether the subject was processed as a juvenile or as an adult at the time of arrest.

## 2.024 Sex:

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Description: Six-character alphanumeric; non-repeating; occurs and is mandatory on the ARR, APP and DOC records.

Discussion: RFP page 83 states, "Sex is redefined to allow only Male, Female." EFTS page C-14 states, "This field is used to report the gender of the subject. The entry is a single character selected from the following table." In addition to codes for "M" and "F," that table provides other codes for unspecified gender, transvestite or impersonator. The MCHS does not use these additional codes.

**2.025 Race:**

Description: Seven-character alphanumeric; non-repeating; occurs and is mandatory on the ARR, APP and DOC records.

Discussion: EFTS page C-13 states, "This field is used to indicate the race of the subject. Use the predominant race code from the following table." This table provides single-letter codes, but it gives text expansion rather than single-word equivalents. RFP page 97 shows the race field with a length of 7 characters, and page 104 gives the spelled-out EDIT table values for this column. Combining these sources yields the following equivalence table:

| RFP | EFTS Code | EFTS Description |
|---|---|---|
| Amerind | I | American Indian, Eskimo, or Alaskan native, or a person having origins in any of the 48 contiguous states whom maintains cultural identification through tribal affiliation or community recognition. |
| Asian | A | Chinese, Japanese, Filipino, Korean, Polynesian, Indian, Indonesian, Asian Indian, Samoan, or any other Pacific Islander. |
| Black | B | A person having origins in any of the black racial groups of Africa. |
| Other | U | Of indeterminate race. |
| White | W | Caucasian, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race. |

*Exhibit A-7.  Race Codes*

Note that, to the FBI, a Spanish-speaking person of pure African descent is White, not Black. DPS is aware of this source of ambiguity, and has indicated that no software solution will be required.

**2.026 Scars, Marks, and Tattoos:**

Description: Alphanumeric with two subfields; repeats zero to ten times; occurs and is optional on the ARR and DOC records only. Subfields are:

| Field Name | Field Length |
|---|---|
| Mark Code | 20 |
| Mark Description | 20 |

*Exhibit A-8.  Scars, Marks and Tattoos (SMTs) Subfields*

Discussion: EFTS page C-15 states, "For each scar, mark, or tattoo present on the subject, the appropriate NCIC code shall be used in this information item. Up to ten such codes

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may be entered and shall be separated by the RS separator character." RFP page 83 states, "Scars, Marks, Tattoos (SMTs) is redefined to provide two subfields: first same as FBI list, second a free-text description." NCIC codes are found in Part IV, Section 13, beginning on page 4-6. EFTS page D-2 shows a 10-character field. RFP page 98 however, shows two 20-character fields for mark code and description.

### 2.027   Height:

Description:          Three-character alphanumeric; non-repeating; occurs and is optional on ARR, APP and DOC records.

Discussion:          EFTS page C-8 states, "This field contains the subject's height as a three-character value. If reported in feet and inches, the first (leftmost) digit is used to show feet while the two rightmost digits are used to show the inches between 00 and 11. If reported in inches, the leftmost character is "N" followed by two digits. If height is unknown, 000 is entered." The MCHS format is feet and inches (the first EFTS format). Since the field is to be optional, the EFTS '000' value is excluded by field edits, as is any value less than four feet.

The value may not be less than 4 feet or greater than 8 feet 11 inches.

### 2.029   Weight:

Description:          Three-digit integer; non-repeating; occurs and is optional on the ARR, APP and DOC records.

Discussion:          EFTS page C-16 states, "In this field the subject's weight in pounds is entered. If weight is unknown, 000 is entered.' Since this field is optional in the MCHS, the EFTS '000' value is excluded.

The value may not be less than 70 pounds or greater than 600 pounds.

### 2.031   Eye Color:

Description:          Ten-character alphanumeric; non-repeating; occurs and is mandatory on the ARR and DOC records only.

Discussion:          RFP page 83 states, "Color Eyes is redefined to provide spelled-out versions of FBI codes." EFTS page C-4 provides 3-character codes and expansions for this value. RFP page 95 shows eye color defined as varchar(1), checked against the EDIT table. This is an error for "varchar(10)". A list of the supported edit values, with MCHS and EFTS equivalents, follows:

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| EFTS Code | EFTS Value | MCHS Value |
|-----------|-----------|------------|
| BLK | Black | Black |
| BLU | Blue | Blue |
| BRO | Brown | Brown |
| GRY | Gray | Gray |
| GRN | Green | Green |
| HAZ | Hazel | Hazel |
| XXX | Unknown | Unknown |

*Exhibit A-9.  Eye Color Codes*

**2.032   Hair Color:**

Description:              Ten-character alphanumeric; non-repeating; occurs and is mandatory on ARR and DOC records only.

Discussion:              RFP page 83 states, "Hair Color is redefined to provide spelled-out versions of FBI codes."  EFTS page C-8 provides 3-character codes and expansions for this value. RFP page 95 shows a 10-character hair color.  A list of the supported edit values, with MCHS and EFTS equivalents, follows:

| EFTS Code | EFTS Value | MCHS Value |
|-----------|-----------|------------|
| BAL | Bald | Bald |
| BLK | Black | Black |
| BLN | Blond or Strawberry | Blonde |
| BRO | Brown | Brown |
| GRY | Gray or Partially Gray | Gray |
| RED | Red or Auburn | Red |
| SDY | Sandy | Sandy |
| WHI | White | White |
| XXX | Unknown | Unknown |

*Exhibit A-10.  Hair Color Codes*

**2.035   Palm Prints Available:**

Description:              Three-character alphanumeric; non-repeating; occurs and is mandatory on the ARR and DOC records only.

Discussion:              EFTS page C-13 states, "If palm prints are available, this field shall contain a "Y"; otherwise, the field shall be omitted."  RFP page 83 states, "Palm Prints Available indicator will be redefined to Yes, No."

Where the value in this field indicates that Palm Prints are available, a Repository SAMPLE

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record is stored with a SAMPLE_TYPE value of 'Palmprint', the CONTRIBUTOR set to the Originating Agency ORI value from the Type-1 record, and the DATE_REPORTED set to the Transaction Date value from the Type-1 record.

**2.036    Photo Available:**

Description:            Three-character alphanumeric; non-repeating; occurs and is mandatory on the ARR and DOC records only.

Discussion:            EFTS page C-12 states, "If a photograph of the subject is available, this field shall contain a "Y"; otherwise, the field shall be omitted".  RFP page 84 states, "Photo Available indicator will be redefined to Yes, No."

Where the value in this field indicates that a Photo is available, a Repository SAMPLE record is stored with a SAMPLE_TYPE value of 'Photo', the CONTRIBUTOR set to the Originating Agency ORI value from the Type-1 record, and the DATE_REPORTED set to the Transaction Date value from the Type-1 record.

**2.037    Reason Fingerprinted:**

Description:            Twenty-character alphanumeric; non-repeating; occurs and is mandatory on the APP record only.

Discussion:            EFTS page C-14 states, "This field is used to indicate the purpose of a civil or applicant fingerprint card submission.  This field will indicate if the card is submitted for licensing, gun permit, or criminal justice employment.  This field is used by the FBI to determine if user fees are charged."  RFP page 87 states, "Fields are added for FeePaid, ResponseAddress, Purpose" to the APP record.  Following discussions with DPS, it has been determined that the Purpose field would duplicate the existing Reason Fingerprinted field; accordingly, the Purpose field has been dropped.

Initially, no Applicant data will be stored in the Repository.  The MCHS design, however, provides for the future capability to store records for certain classes of Applicant.  The Reason Fingerprinted might well determine whether a given Applicant record was stored in the Repository.

**2.038    Date Printed:**

Description:            Eight-digit integer; non-repeating; occurs and is mandatory on the ARR, APP and DOC records.

Discussion:            EFTS page C-4 states, "This field contains the date that the subject was fingerprinted."  This is a date of format YYYYMMDD. It represents the date of information for the occupation, employer and address data derived from the event.

**2.039    Occupation, Employer and Address:**

Description:            Alphanumeric with five subfields; non-repeating; occurs and is optional on the ARR record only.  Subfields are:

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| Subfield Name | Length | Max Occurrences |
|---|---|---|
| Occupation | 50 | 1 |
| Employer | 35 | 1 |
| Employer Address, 1 | 35 | 1 |
| Employer Address, 2 | 35 | 1 |
| Employer Address, 3 | 35 | 1 |

*Exhibit A-11. Occupation, Employer and Address Subfields*

Discussion: RFP page 84 states, "Occupation and Employer and Address will be combined into a single field with two subfields." EFTS field number 2.040 (Occupation) provides 50 characters, while field number 2.039 (Employer and Address) provides 120. Both fields contain undivided free-text values. The Address has been divided into three lines in order to facilitate formatted printing. The subject's Residence Address will follow the same format.

## 2.041   Residence of Person Fingerprinted:

Description: Alphanumeric with three subfields; non-repeating; occurs and is optional on the ARR record only. Subfields are:

| Subfield Name | Length | Max Occurrences |
|---|---|---|
| Subject Address, 1 | 35 | 1 |
| Subject Address, 2 | 35 | 1 |
| Subject Address, 3 | 35 | 1 |

*Exhibit A-12. Subject Address Subfields*

Discussion: EFTS provides 120 characters of free text for this field, which is the same size provided to store the subject's Employer plus the Employer's address.

## 2.045   Date of Arrest:

Description: Eight-digit integer; non-repeating; occurs and is mandatory on the ARR record only.

Discussion: EFTS page C-3 states, "This field contains the date of arrest." The date format is YYYYMMDD.

This value is stored in the Repository twice, recording the arrest itself and also the charge-like events associated with the initial arrest).

## 2.056   Identification Comments:

Description: Fifty-character alphanumeric; non-repeating; occurs and is optional on the ARR and DOC records only.

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Discussion:  EFTS page C-8 states, "Additional miscellaneous identification remarks providing the reason for caution may be entered in this field.  The first character may not be a blank."  In the MCHS, this field contains other information besides cautionary information, and is captioned simply as 'Identification Comments.'

**2.067   Image Processing Field:**

Description:  Alphanumeric, with three subfields; non-repeating; occurs and is optional on the ARR, APP and DOC records.  Subfields are:

| Subfield Name | Length | Max Occurrences |
|---|---|---|
| Equipment Make | 50 | 1 |
| Equipment Model | 25 | 1 |
| Equipment Serial Number | 25 | 1 |

*Exhibit A-13.  Image Processing Subfields*

Discussion:  EFTS page C-9 states, "This free text field is used to log the make, model , and serial number of the equipment used to acquire images.  The make, model, and serial number of the acquisition devices shall be separated by the US separator character."  EFTS page D-4 shows a length of 100 characters for this field.  We divided this field into subfields as specified above.

**2.068   Image Pre-Processing:**

Description:  One-character alphanumeric; non-repeating; occurs and is optional on ARR, APP, and DOC records.

Discussion:  EFTS page C-9 states, "This field is used to indicate whether the image is original or compressed.  A 'Y' indicates that the image is an original image or processed with a lossless algorithm.  A 'N' or a blank indicates otherwise."  Since this is a machine-readable field only, the one-character format has been retained.  A blank is not an acceptable value, since the field itself is optional.

**2.070   Request for Rap Sheet:**

Description:  Thirty-character alphanumeric; non-repeating; occurs and is optional on the ARR, APP and DOC records.

Discussion:  EFTS page C-14 states, "The purpose of this field is to allow the contributors, in case of an Ident, to optionally request the rap sheet of the suspect.  A 'Y' indicates that a rap sheet is desired and an 'N' or blank field indicates that no rap sheet should be returned with the Ident response.'  EFTS did not anticipate the multiple rap sheet format and content variations required for MCHS.  Eighteen such variations have been identified.  At Technical Exchange Meeting Number 3, it was suggested that we might adopt a positional coding scheme in which the first letter would code the transmission format (Electronic, FAX, Print/Mail), the second would code the report level (General or Felony), while the third would code the report format (Red/Green, Full, Compressed, Summary).  DPS has indicated, however, that not all combinations of these elements are valid; specifically, there is no 'Felony Summary'

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report.  Further, there may be future requirements for report formats that do not fit into this coding scheme.  Accordingly, this field has been changed to a text field that may contain one of the following values:

| Rap Sheet Formats |
|---|
| Electronic Compressed |
| Electronic Felony Compressed |
| Electronic Full |
| Electronic Felony Full |
| Electronic Summary |
| FAX General Red/Green |
| FAX Felony Red/Green |
| FAX Compressed |
| FAX Felony Compressed |
| FAX Full |
| FAX Felony Full |
| FAX Summary |
| Print/Mail General Red/Green |
| Print/Mail Felony Red/Green |
| Print/Mail Compressed |
| Print/Mail Felony Compressed |
| Print/Mail Full |
| Print/Mail Felony Full |

*Exhibit A-14.  Rap Sheet Formats*

## A.2.1.2    New Fields

The following fields have been added in response to RFP requirements.  They are numbered from 2.700 up.

**2.701   Arrest Tracking Number (ATN):**

Description:            Ten-character numeric; non-repeating; occurs and is mandatory on the ARR record only.

Discussion:            The ATN will contain a check digit, as will the SID, and the same check digit algorithm will be used for both.

**2.702   Arresting Agency ORI:**

Description:            Nine-character alphanumeric; non-repeating; occurs and is mandatory on the ARR record only.

Discussion:            RFP page 84 states, "Arresting Agency ORI will be added" to the ARR record.

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**2.703   Driver License Number:**

Description:            Alphanumeric with two subfields; repeats zero to four times; occurs and
is optional on the ARR, APP and DOC records.  Subfields are:

| Subfield Name | Length | Max Occurrences |
|---|---|---|
| License State | 2 | 1 |
| License Number | 20 | 1 |

*Exhibit A-15.  Driver License Subfields*

Discussion:            RFP page 84 states, "Driver License field will be added with two
subfields:  state, number" to the ARR record, and similar language occurs on page 87 for the
APP record.  This is not one of the fields excluded from the DOC record.  A repeating field with
four occurrences has been provided for consistency with field number 2.017 (Miscellaneous
Identification Numbers), above.  While four occurrences may be more than necessary, it is not
unusual for a criminal suspect to carry more than one Driver License.  The License Number
subfield has been expanded to 20 characters for consistency with NCIC.  DPS does contemplate
storing International Driver License numbers; other foreign driver license numbers are expected
to be rare.

**2.704   Arrest Type:**

Description:            Fifteen-character alphanumeric; non-repeating; occurs and is mandatory
on the ARR record only.

Discussion:            RFP page 84 states, "Arrest Type field will be added with these options:
Adult, Juvenile, Juvenile as Adult."  On RFP page 88, this field was excluded from the DOC
record.  On RFP page 103, the following values (not all of are arrest types) are listed for the
EventType element:

| Event Types |
|---|
| Bench Warrant |
| Disposed |
| Fail to Appear |
| Filed |
| Adult Arrest |
| Juvenile Arrest |
| Juv-as-Adult Arrest |

*Exhibit A-16.  Event Types*

The Arrest Type is a subset of a larger Event Type class.  While all of the Event Type values are
stored in a common Repository column, each different Source Document provides a separate
list of values so that only the Event Types appropriate to that document can be entered from it.

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DPS is the source of the complete list of Event Types and the subsets to be enterable from each source document.

**2.705   Charges:**

<u>Description:</u>            Alphanumeric with eight subfields; repeats one to 99 times; occurs and is mandatory on the ARR record only.  Subfields are:

| Field Name | Length | Max Occurrences |
|---|---|---|
| Citation | 21 | 1 |
| Description | 120 | 1 |
| Supplement | 40 | 1 |
| Severity | 11 | 1 |
| Counts | 3 | 1 |
| Offense Date | 8 | 1 |
| Action | 14 | 1 |
| Remark | 50 | 1 |

*Exhibit A-17.  Arrest Charges Subfields*

<u>Discussion:</u>            RFP page 84 states, "Arrest Charges will be added as a field with these subfields:  Severity, Counts, Citation, Description, Offense Date, Disposition."  Subsequent discussions with DPS have clarified and added to these subfields.  The subfield breakdown and attributes for the Arrest Charges field on the ARR record are identical to that for the Prosecutor Charges field on the Prosecutor Case Intake Report record.  The Sentences field on the Court Disposition Report message extend this subfield structure by adding additional subfields. Values listed for the severity code are shown in Exhibit A-18.

| Severity Levels |
|---|
| Felony |
| Misdemeanor |
| Unknown |
| Violation |

*Exhibit A-18  Severity Levels*

Action was omitted from the RFP by mistake.  This data item has been renamed from 'Disposition' to 'Action' following discussions with DPS.  On page 103, the following values for the EDIT table Disposition element are listed:

| Action Values |
|---|
| Dismissed |
| Guilty |
| No Prosecution |

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| Not Guilty |
| Turned Over |

*Exhibit A-19.  Actions*

This subfield is a subset of a global 'Action' class, for which other subsets occur on the Prosecutor Disposition Report and the Court Disposition Report.  The values listed above include values that would not be appropriate for the Arrest Fingerprint Card record.  Each form has its own set of valid values for the 'Action' subfield.

Following discussions with DPS, a 50-character free text Remark subfield has been added to this field.

**2.706  Fee Paid:**

Description:                Floating point with precision 3.2; non-repeating; occurs and is optional on the APP record only.

Discussion:                RFP page 87 states, "Fields are added for FeePaid, ResponseAddress, Purpose" to the APP record.  DPS has indicated that this is to be a monetary amount, in dollars and cents, and must be large enough to accommodate the fee charged by the FBI added to the fee charged by DPS.

**2.707  Response Address:**

Description:                Alphanumeric with six subfields; non-repeating; occurs and is mandatory on the APP record only.  Subfields are:

| Subfield Name | Length | Max Occurrences |
|---|---|---|
| Addressee | 50 | 1 |
| Address, 1 | 35 | 1 |
| Address, 2 | 35 | 1 |
| Address, 3 | 35 | 1 |
| Voice Phone Number | 20 | 1 |
| FAX Number | 12 | 1 |

*Exhibit A-20  Response Address Subfields*

Discussion:                RFP page 87 states, "Fields are added for FeePaid, ResponseAddress, Purpose" to the APP record.  The following subfield structure has been reviewed by DPS:

1.        Addressee.  This is the name of the person or company to which the response is to be sent.  It is 50 characters long.

2.        Address Line 1.  The first line of the address; it is 35 characters long.

3.        Address Line 2.  The second line of the address; it is 35 characters long.

4.        Address Line 3.  The third line of the address; it is 35 characters long.

5.        Voice phone number.  If it is to include hyphens, as shown in the example, it

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should be at least varchar(12).  A length of 20 has been provided to accommodate extensions.

6.       FAX number.  A length of 12 characters has been provided to include hyphens, as shown in the example.

### 2.709   Department of Corrections Number:

<u>Description:</u>        Ten-character alphanumeric; non-repeating; occurs and is mandatory on the DOC record only.

<u>Discussion:</u>        RFP page 88 states, "DOC field will be added" to the DOC record.  RFP page 89 maps this element to the DOC Database "DOCNUMB" element.

### A.2.2   Tenprint Message Layout

Exhibit A-21, Tenprint Message Layout Summary, presents the Tenprint Message fields in tabular form.  The column headings for that figure are:

- Field #:  The NIST Field Number referenced in the field descriptions above.

- C:  'Condition'.  Values are 'M' for 'Mandatory', and 'O' for 'Optional.'

- TOT:  The Type of Transaction in which the field may occur.  Values are from Exhibit A-2, Tenprint Card Types of Transaction, above.  Where the field may occur in all three Types of Transaction, a value of 'ALL' is shown.

- T:  'Type' of data.  Values are 'N' for 'Numeric', and 'A' for 'Alphanumeric.'

- L:  'Length' of the field or subfield data in bytes.  This does not include information separator characters.

- O:  'Occurrences', where '1' indicates a non-repeating item, and a number greater than 1 indicates the maximum number of occurrences of a repeating field.

- Field Name: The English-language identification of the field.

| Field # | C | TOT | T | L | O | Field Name |
|---|---|---|---|---|---|---|
| 2.001 | M | ALL | N | 5 | 1 | Logical Record Length |
| 2.002 | M | ALL | N | 2 | 1 | Image Designation Character (IDC) |
| 2.008 | O | APP | N | 10 | 1 | "No Charge" Indicator |
| 2.009 | O | ARR, APP | A | 10 | 1 | Originating Agency Case Number |
| 2.014 | O | ALL | A | 9 | 1 | FBI Number |
| 2.015 | O | ARR, DOC | A | 10 | 1 | State Identification Number (SID) |
| 2.016 | O | ALL | N | 9 | 4 | Social Security Account Number |
| 2.017 | O | ALL | | | 4 | Miscellaneous Identification Number |
| | | | A | 15 | | Number Type |

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| Field # | C | TOT | T | L | O | Field Name |
|---|---|---|---|---|---|---|
| | | | A | 12 | | Number Value |
| 2.018 | M | ALL | | | 11 | Name/Aliases |
| | | | A | 35 | | Surname |
| | | | A | 20 | | First Name |
| | | | A | 20 | | Middle Name |
| | | | A | 4 | | Suffix |
| 2.020 | M | ARR, DOC | A | 2 | 1 | Place Of Birth |
| 2.021 | O | ARR, DOC | A | 2 | 1 | Country Of Citizenship |
| 2.022 | M | ALL | N | 8 | 5 | Date Of Birth |
| 2.024 | M | ALL | A | 6 | 1 | Sex |
| 2.025 | M | ALL | A | 7 | 1 | Race |
| 2.026 | O | ARR, DOC | | | 10 | Scars, Marks And Tattoos |
| | | | A | 20 | | Code |
| | | | A | 20 | | Description |
| 2.027 | O | ALL | A | 3 | 1 | Height |
| 2.029 | O | ALL | N | 3 | 1 | Weight |
| 2.031 | M | ARR, DOC | A | 10 | 1 | Eye Color |
| 2.032 | M | ARR, DOC | A | 10 | 1 | Hair Color |
| 2.035 | M | ARR, DOC | A | 3 | 1 | "Palm Prints Available" Indicator |
| 2.036 | M | ARR, DOC | A | 3 | 1 | "Photo Available" Indicator |
| 2.037 | M | APP | A | 20 | 1 | Reason Fingerprinted |
| 2.038 | M | ALL | N | 8 | 1 | Date Printed |
| 2.039 | O | ARR | | | 1 | Employer, Address, And Occupation |
| | | | A | 50 | | Occupation |
| | | | A | 35 | | Employer |
| | | | A | 35 | | Employer Address, 1 |
| | | | A | 35 | | Employer Address, 2 |
| | | | A | 35 | | Employer Address, 3 |
| 2.041 | O | ARR | | | 1 | Residence Of Person Fingerprinted |
| | | | A | 35 | | Residence Address, 1 |
| | | | A | 35 | | Residence Address, 2 |
| | | | A | 35 | | Residence Address, 3 |
| 2.045 | M | ARR | N | 8 | 1 | Date Of Arrest |
| 2.056 | O | ARR, DOC | A | 50 | 1 | Identification Comments |
| 2.067 | O | ALL | | | 1 | Image Processing Field |
| | | | A | 50 | | Equipment Make |
| | | | A | 25 | | Equipment Model |

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| Field # | C | TOT | T | L | O | Field Name |
|---|---|---|---|---|---|---|
| | | | A | 25 | | Equipment Serial Number |
| 2.068 | O | ALL | A | 1 | 1 | Image Preprocessing |
| 2.070 | O | ALL | A | 30 | 1 | Request For Rap Sheet |
| 2.701 | M | ARR | N | 10 | 1 | Arrest Tracking Number (ATN) |
| 2.702 | M | ARR | A | 9 | 1 | Arrest Agency ORI Number |
| 2.703 | O | ALL | | | 4 | Driver License Number |
| | | | A | 2 | | License State |
| | | | A | 20 | | License Number |
| 2.704 | M | ARR | A | 17 | 1 | Arrest Type |
| 2.705 | M | ARR | | | 99 | Charges |
| | | | A | 21 | | Citation |
| | | | A | 120 | | Description |
| | | | A | 40 | | Supplement |
| | | | A | 11 | | Severity |
| | | | N | 3 | | Counts |
| | | | N | 8 | | Offense Date |
| | | | A | 14 | | Action |
| | | | A | 50 | | Remark |
| 2.706 | O | APP | F | 6 | 1 | Fee Paid |
| 2.707 | M | APP | | | 1 | Response Address |
| | | | A | 50 | | Addressee |
| | | | A | 35 | | Address, 1 |
| | | | A | 35 | | Address, 2 |
| | | | A | 35 | | Address, 3 |
| | | | A | 20 | | Voice Phone Number |
| | | | A | 12 | | Fax Number |
| 2.709 | M | DOC | A | 10 | 1 | Department Of Corrections Number |

*Exhibit A-21  Tenprint Message Layout Summary*

## A.3   The Type-10 Record

The NIST standard for Mug Shot data was still under discussion when the Mug Shot subsystem was designed and developed.  At the first MCHS Technical Exchange Meeting (TEM) in Jackson, Mississippi on October 24, 1996, it was agreed that the standard set forth in the NIST Addendum would be followed.  The developers of the Live Scan system began integration of the digital camera with Live Scan after the Addendum was finalized in December 1997.  They used the final document.  It was also agreed at the first TEM that the NIST Addendum data elements for Scars, Marks, and Tattoos (SMTs) would not be supported in MCHS.  Accordingly,

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the Type-10 record format presented here supports only Mug Shots, and omits those fields that the NIST Addendum provides for SMTs. SMT data was the major change from the Draft to Final NIST standard.

## A.3.1  Mug Shot Record Fields

The following field list presents field attributes for the individual Type-10 record fields. These are derived entirely from the NIST Addendum. No new fields are proposed.

### 10.001  Logical Record Length:

Description:             Seven-digit integer; non-repeating; mandatory.

Discussion:              NIST Addendum page 7 states:

This mandatory ASCII field contains the total count of the number of bytes in the Type-10 logical record. Field 10.001 specifies the length of the record including every character of every field contained in the record and the information separators. The GS character shall separate the length of Field 10.001 from the next field.

This length includes the length of Field 10.999, which contains the binary Mug Shot image.

### 10.002  Image Designation Character (IDC):

Description:             Four-digit integer; non-repeating; mandatory.

Discussion:              NIST Addendum page 7 states:

This mandatory one to four byte ASCII field is used to identify the facial or SMT image data contained in this record. This IDC matches the IDC found in the file content field of the Type-1 record.

### 10.003  Image Type:

Description:             Four-character alphanumeric; non-repeating; mandatory.

Discussion:              NIST Addendum page 7 states:

This mandatory ASCII field is used to indicate the type of biometric image contained in this record. This field shall contain 'FACE', 'SCAR', 'MARK', or 'TATTOO' to indicate a face, scar, mark or tattoo image.

Since the MCHS supports only Mug Shots for the Type-10 record, this field is always set to 'FACE'.

### 10.004  Source Agency/ORI:

Description:             Nine-character alphanumeric; non-repeating; mandatory.

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Discussion:             NIST Addendum page 9 states:

This mandatory ASCII field shall contain the identification of the administration or organization that originally captured the facial image contained in the record.  Normally, the ORI of the agency that captured the image will be contained in this field.  The size and data content of this field shall be defined by the user and be in accordance with the receiving agency.

The format adopted here is the MCHS standard ORI format.

**10.005  Photo Date:**

Description:             Eight-digit integer; non-repeating; mandatory.

Discussion:             NIST Addendum page 9 states:

This mandatory ASCII field contains the date that the facial or SMT image contained in the record was captured.  The date appears as eight digits in the format CCYYMMDD. . . . The complete date must be a legitimate date and not exceed the current date.

This is the standard MCHS date format.

**10.006  Horizontal Line Length:**

Description:             Four-digit integer; non-repeating; mandatory.

Discussion:             NIST Addendum page 9 states:

This mandatory ASCII field shall contain the number of pixels contained on a single horizontal line of the transmitted message.

**10.007  Vertical Line Length:**

Description:             Four-digit integer; non-repeating; mandatory.

Discussion:             NIST Addendum page 9 states:

This mandatory ASCII field contains the number of horizontal lines contained in the transmitted image.

**10.008  Scale Units:**

Description:             One-digit integer; non-repeating; mandatory.

Description:             NIST Addendum page 9 states:

This mandatory ASCII field is used to specify the units used to describe the image resolution.  A '1' in this field indicates pixels per inch, or a '2' indicates pixels per centimeter.  A '0' in this field indicates none.  In this case the quotient of HPS/VPS gives the pixel aspect ratio.

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**10.009  Horizontal Pixel Scale:**

<u>Description:</u>           Two-digit integer; non-repeating; mandatory.

<u>Discussion:</u>           NIST Addendum page 9 states:

This mandatory ASCII field is used to specify the horizontal resolution of the image if [field number 10.008 (Scale Units)] contains a '1' or a '2'.  Otherwise, it indicates the horizontal component of the pixel aspect ratio.

**10.010  Vertical Pixel Scale:**

<u>Description:</u>           Two-digit integer; non-repeating; mandatory.

<u>Discussion:</u>           NIST Addendum page 9 states:

This mandatory ASCII field is used to specify the vertical resolution of the image if [field number 10.008 (Scale Units)] contains a '1' or a '2'.  Otherwise, it indicates the vertical component of the pixel aspect ratio.

**10.011  Compression Algorithm:**

<u>Description:</u>           Six-character alphanumeric; non-repeating; mandatory.

<u>Discussion:</u>           NIST Addendum page 10 states:

This mandatory ASCII field is used to specify the algorithm used to compress the color or grayscale image.  An entry of 'NONE' in this field indicates that the data contained in this field is uncompressed.

The method for the compression of facial and SMT images is specified by the baseline mode of the Joint Photographic Experts Group (JPEG) algorithm formatted in accordance with the JPEG File Interchange Format, Version 1.02 (JFIF).  An entry of 'JPEGB' indicates that the scanned or captured image was compressed using baseline JPEG.  An entry of 'JPEGL' indicates that the lossless mode of the JPEG algorithm was used to compress the image.   If the image is captured in grayscale, then only the luminescence component will be compressed and transmitted.

**10.012  Colorspace:**

<u>Description:</u>           Four-character alphanumeric; non-repeating; mandatory.

<u>Discussion:</u>           NIST Addendum page 10 states:

This mandatory ASCII field shall contain the color space used to exchange the image.  For compressed images, the preferred colorspace using baseline JPEG and JFIF is YCbCr to be coded as 'YCC'.  An entry of 'GRAY' shall be used for all grayscale images.  For uncompressed color images containing non-interleaved red, green and blue pixels in that order, this field shall contain 'RGB'.  All other colorspaces are undefined.

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**10.020  Subject Pose:**

Description:             One-character alphanumeric; non-repeating; optional.

Discussion:             NIST Addendum page 10 states:

This is an optional field to be used for the exchange of facial image data.  When included, this field shall contain a one ASCII character code selected from Table-11 to describe the pose of the subject.  For the angled pose entry ('A'), field 10.021 shall contain the offset from the full face orientation.

Table-11 is transcribed as Exhibit A-22, Subject Pose:

| Pose Description | Pose Code |
|---|---|
| Full Face Frontal | F |
| Right Profile (90 degree) | R |
| Left Profile (90 degree) | L |
| Angled Pose | A |

*Exhibit A-22.  Subject Pose*

**10.021  Pose Offset Angle:**

Description:        Three-digit signed integer (four digits including the sign); non-repeating; optional

Discussion:             NIST Addendum page 11 states:

This field shall only be used for the exchange of facial image data.  Field 10.020 [(Subject Pose)] must contain an 'A' to indicate an angled pose of the subject - not a full face or profile.  This ASCII field specifies the pose position of the subject at any possible orientation within a circle.  The offset angle shall be measured from the full-face pose position and have a range of values from -180 degrees to +180 degrees.  A positive angle is used to express the angular offset as the subject rotates from a full-face pose to their right (approaching a left profile).  A negative angle is used to express the angular offset as the subject rotates from a full-face pose to their left (approaching a right profile).  If the entry in the [Subject Pose] field is an 'L' or an 'R', the contents of this field are ignored.

**10.022  Photo Description:**

Description:             Alphanumeric field consisting of two subfields; repeats zero to twenty times; optional.  Subfields are as follows:

| Field | Length |
|---|---|
| Photo Descriptor | 8 |
| Other Physical Characteristic | 10 |

*Exhibit A-23.  Photo Description Subfields*

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NIST Addendum page 11 states:

This optional ASCII field shall be used for the exchange of facial image data. It shall describe special attributes of the captured facial image. Attributes associated with the facial image may be selected from Table 12 and entered in this field.

Physical characteristics, such as 'freckles', may be entered as a subfield consisting of two information items. The first is 'PHYSICAL' followed by the US separator, followed by the characteristic as listed in Part 4 Section 13 of the NCIC Code Manual. The 'OTHER' category is used to enter unlisted or miscellaneous attributes of the facial image. This information shall be entered as a two information item subfield. The first is 'OTHER' followed by the US separator, followed by the unformatted text used to describe the attribute. Multiple attributes and subfields may be listed but must be separated by the RS character.'

Table 12 is transcribed as Exhibit A-24, Photo Descriptors:

| Facial Image Attribute | Attribute Code |
|---|---|
| Subject Wearing Glasses | GLASSES |
| Subject Wearing Hat | HAT |
| Subject Wearing Scarf | SCARF |
| Physical Characteristics | PHYSICAL |
| Other Characteristics | OTHER |

*Exhibit A-24. Photo Descriptors*

The National Crime Information Center (NCIC) Code Manual reference is presumably to paragraph 13.13, Other Physical Characteristics, on page 4-18. This is reproduced below as Exhibit A-25 Other Physical Characteristics. Some of these characteristics would not be apparent on a facial photograph, but are included for the sake of completeness:

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| Item/Location | Code |
|---|---|
| Bald/Balding | BALD |
| Cleft chin | CLEFT CHIN |
| Dimple, Chin | DIMP CHIN |
| Dimples, left cheek (face) | DIMP L CHK |
| Dimples, right cheek (face) | DIMP R CHK |
| Freckles | FRECKLES |
| Hair implants | HAIR IMPL |
| Pierced abdomen | PRCD ABDMN |
| Pierced back | PRCD BACK |
| Pierced ear, one, nonspecific | PRCD EAR |
| Pierced ears | PRCD EARS |
| Pierced left ear | PRCD L EAR |
| Pierced right ear | PRCD R EAR |
| Pierced genitalia | PRCD GNTLS |
| Pierced lip, nonspecific | PRCD LIP |
| Pierced lip, upper | PRCD ULIP |
| Pierced lip, lower | PRCD LLIP |
| Pierced nipple, nonspecific | PRCD NIPPL |
| Pierced nipple, left | PRCD L NIP |
| Pierced nipple, right | PRCD U NIP |
| Pierced nose | PRCD NOSE |
| Stutters | STUTTERS |

*Exhibit A-25.  Other Physical Characteristics*

**10.999  Image Data:**

Description:            5,000,000-byte binary; non-repeating; mandatory

Discussion:            NIST Addendum page 14 states:

This field shall contain all of the grayscale or color data from a face, scar, mark, or tattoo image. It shall begin with the ASCII identifier '10.999:', and be followed by image data in a binary representation.

If compression is used, the pixel data shall be compressed in accordance with the compression technique specified in the CGA field.  If the JPEG algorithm is . . . used to compress the data, this field shall be encoded using the JFIF format specification.

## A.3.2  Mug Shot Record Layout

Exhibit A-26, Mug Shot Record Layout Summary, presents the Mug Shot Record fields in tabular form.  The column headings for that figure are:

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- Field #:  The NIST Field Number referenced in the field descriptions above.

- C:  'Condition'.  Values are 'M' for 'Mandatory', and 'O' for 'Optional.'

- T:  'Type' of data.  Values are 'N' for 'Numeric', 'A' for 'Alphanumeric' and 'B' for 'Binary'.

- L:  'Length' of the field or subfield data in bytes.  This does not include information separator characters.

- O:  'Occurrences,' where '1' indicates a non-repeating item, and a number greater than 1 indicates the maximum number of occurrences of a repeating field.

- Field Name:  The English-language identification of the field.

| Field # | C | T | L | O | Field Name |
|---------|---|---|---|---|------------|
| 10.001 | M | N | 7 | 1 | Logical Record Length |
| 10.002 | M | N | 4 | 1 | Image Designation Character (IDC) |
| 10.003 | M | A | 4 | 1 | Image Type |
| 10.004 | M | A | 9 | 1 | Source Agency/ORI |
| 10.005 | M | N | 8 | 1 | Photo Date |
| 10.006 | M | N | 4 | 1 | Horizontal Line Length |
| 10.007 | M | N | 4 | 1 | Vertical Line Length |
| 10.008 | M | N | 1 | 1 | Scale Units |
| 10.009 | M | N | 2 | 1 | Horizontal Pixel Scale |
| 10.010 | M | N | 2 | 1 | Vertical Pixel Scale |
| 10.011 | M | A | 6 | 1 | Compression Algorithm |
| 10.012 | M | A | 4 | 1 | Colorspace |
| 10.020 | O | A | 1 | 1 | Subject Pose |
| 10.021 | O | N | 4 | 1 | Pose Offset Angle |
| 10.022 | O | | | 20 | Photo Description |
| | | A | 8 | 1 | Photo Descriptor |
| | | A | 10 | 1 | Other Physical Characteristic |
| 10.999 | M | B | 5,000,000 | 1 | Image Data |

*Exhibit A-26.  Mug Shot Record Layout Summary*

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